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VOLUME VII OCTOBER, 1914 NUMBER 10

Southern Medical Journal

Journal of The Southern Medical Association

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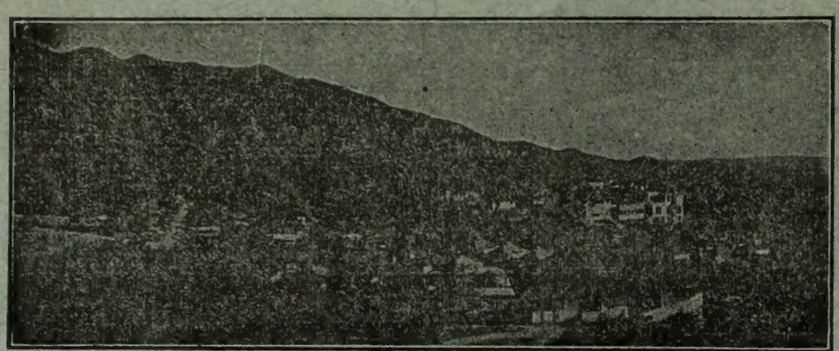

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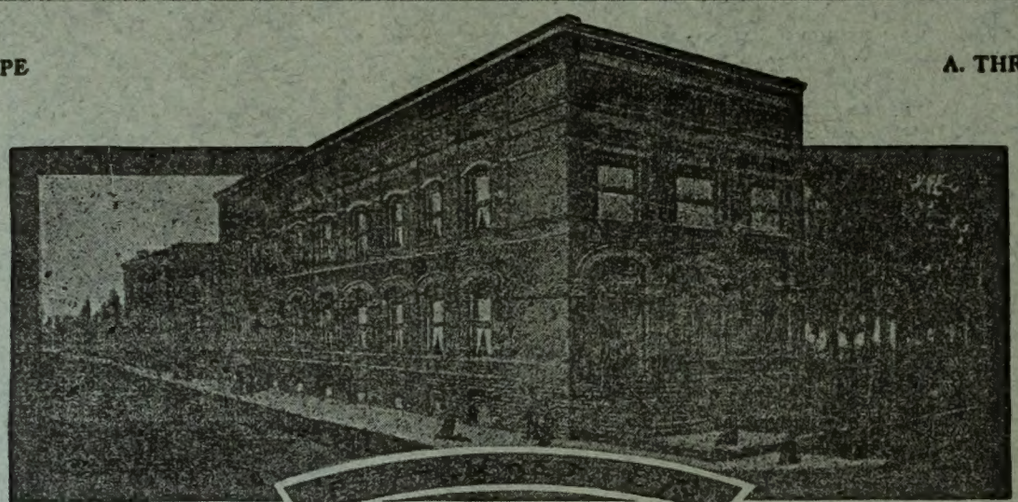

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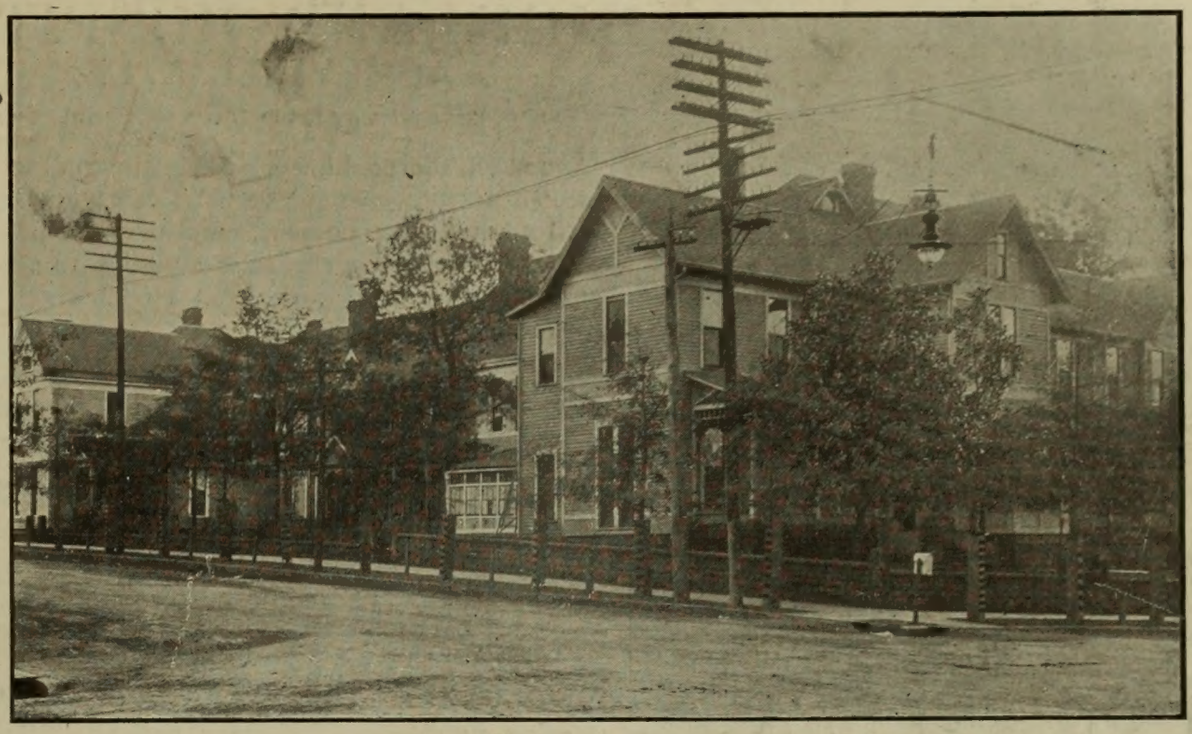

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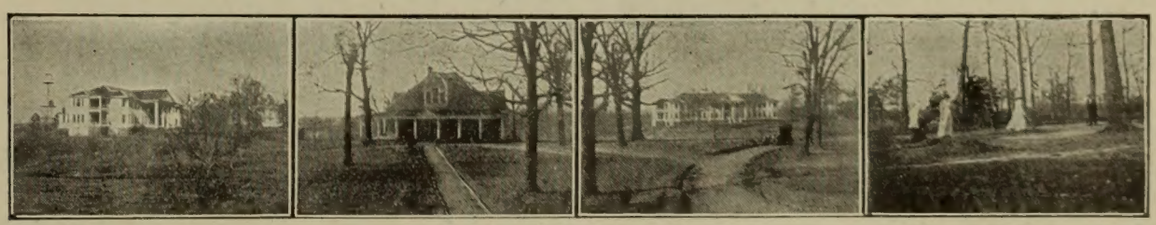

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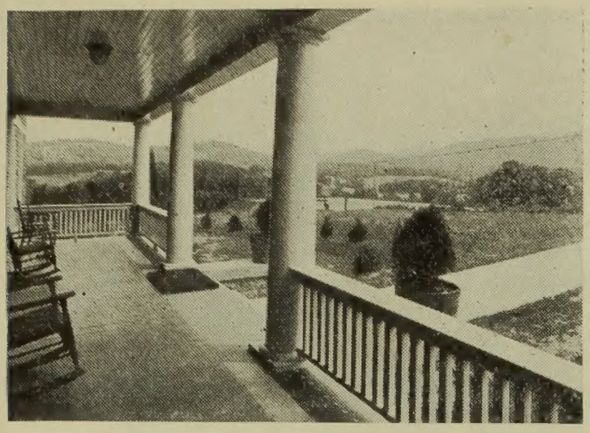

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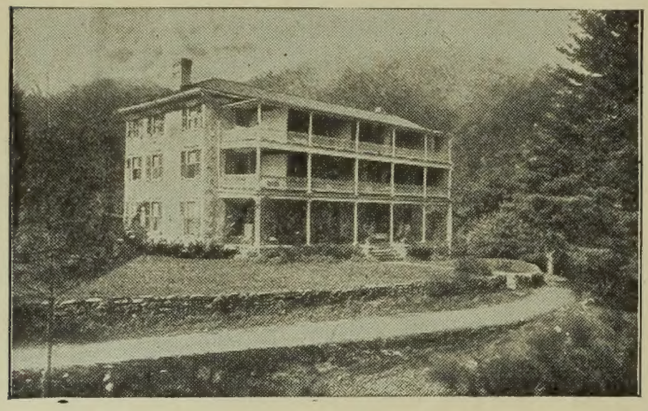

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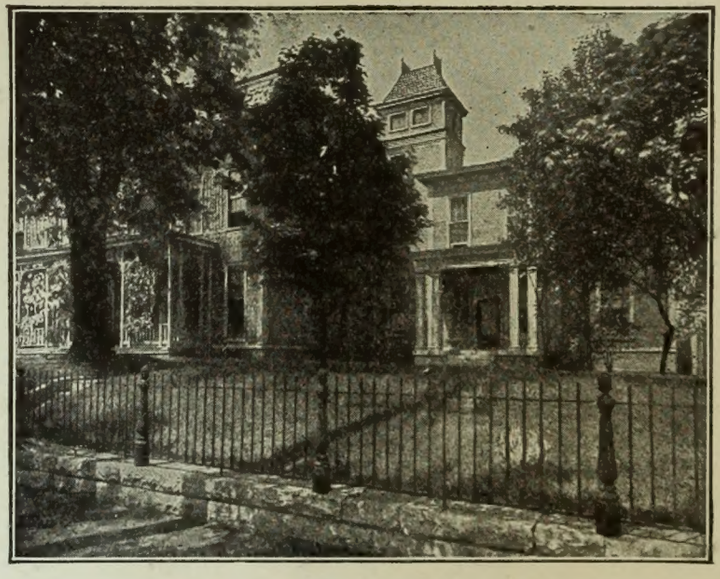

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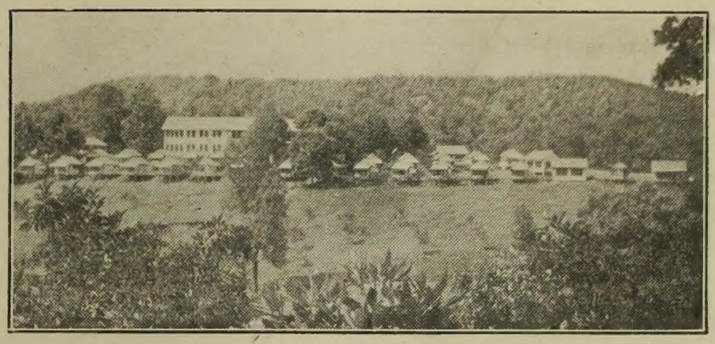

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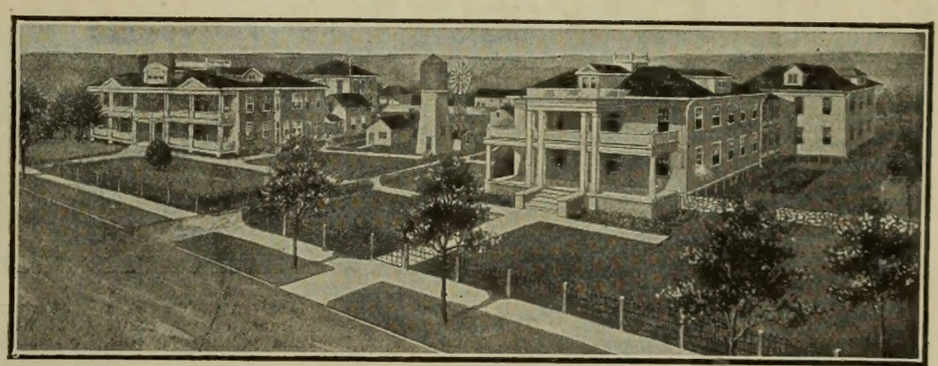

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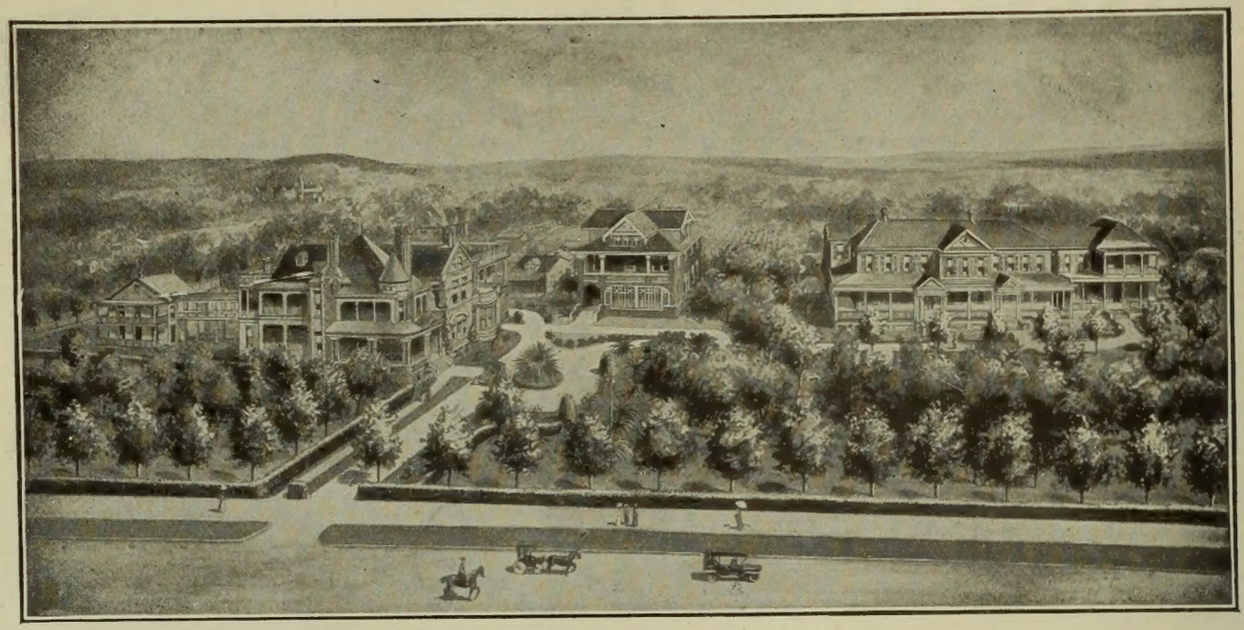

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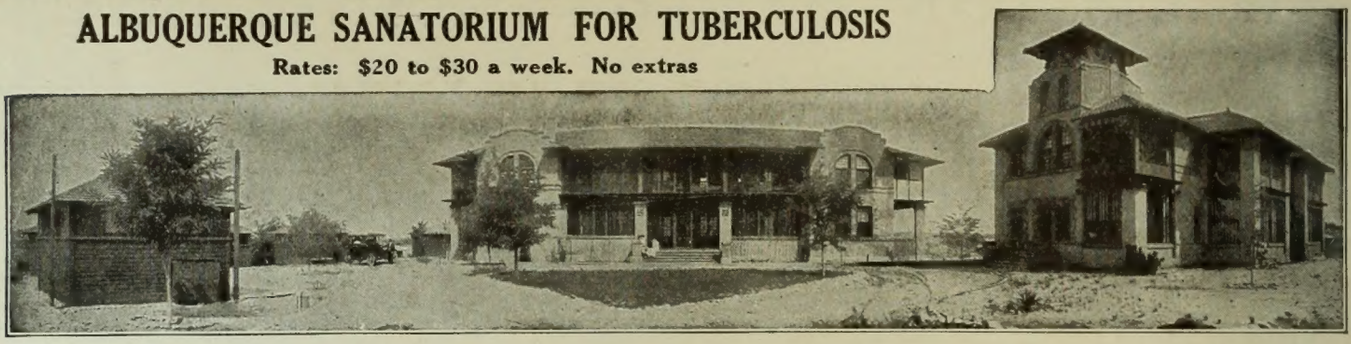

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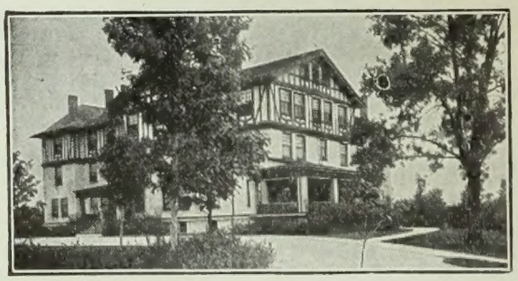

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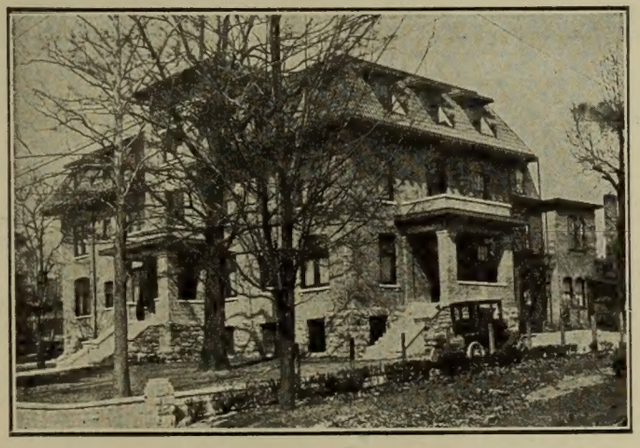

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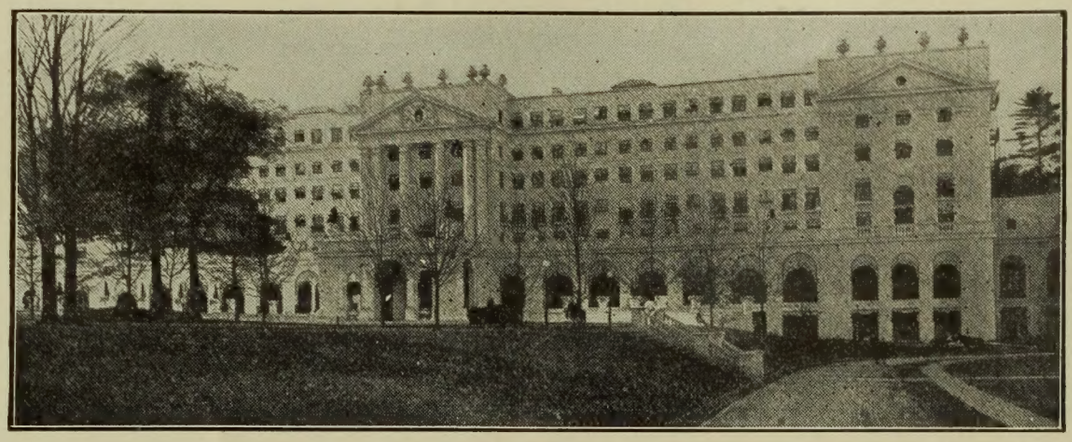

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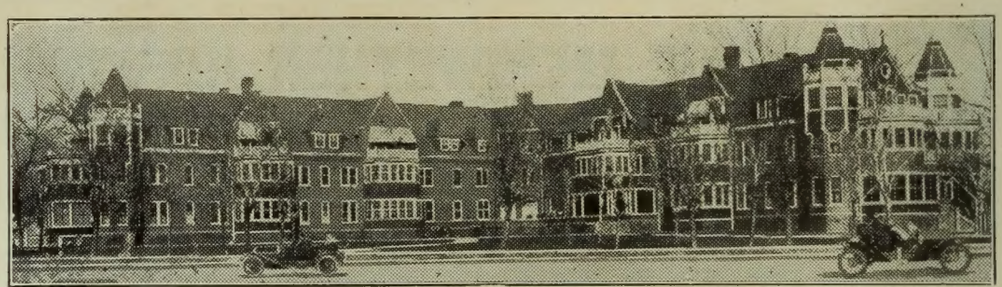

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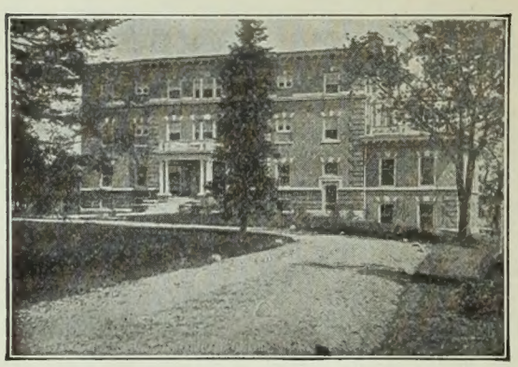

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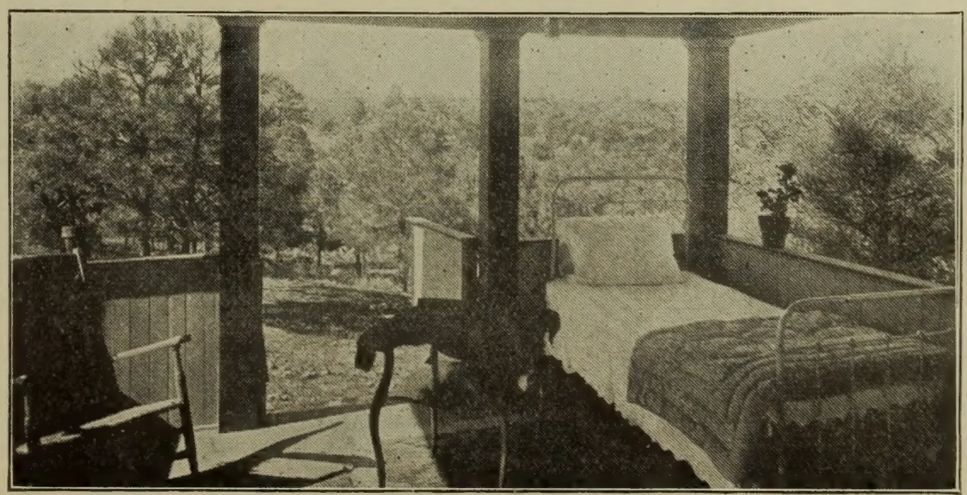

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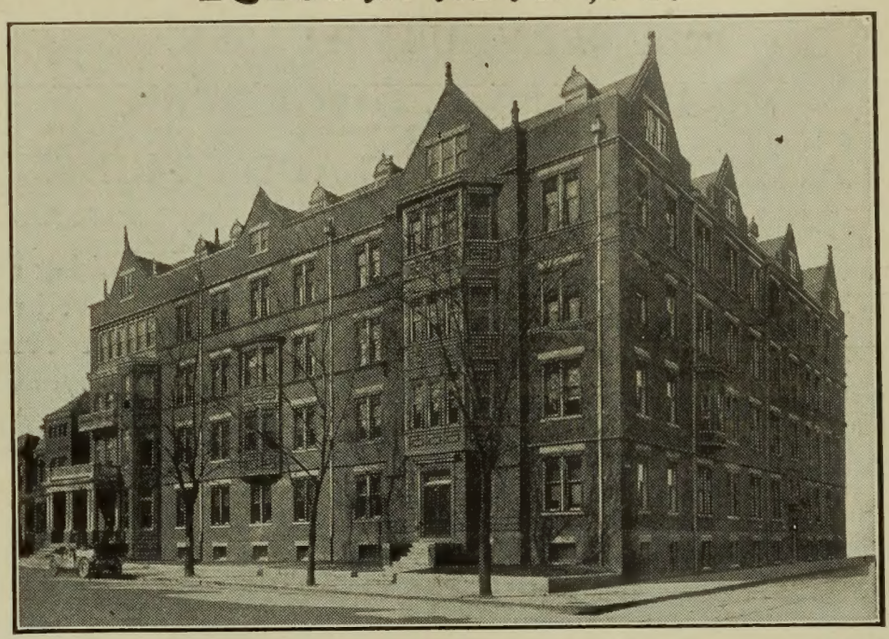

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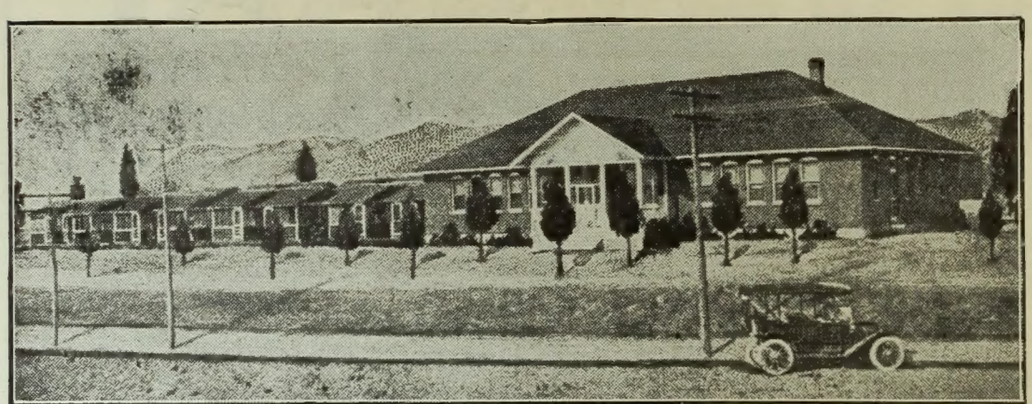

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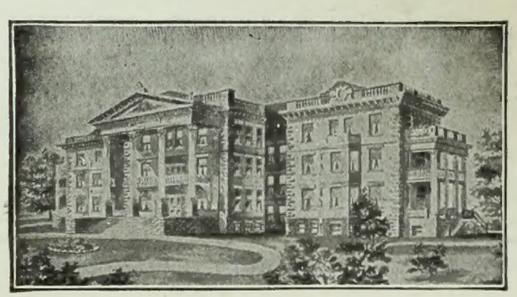

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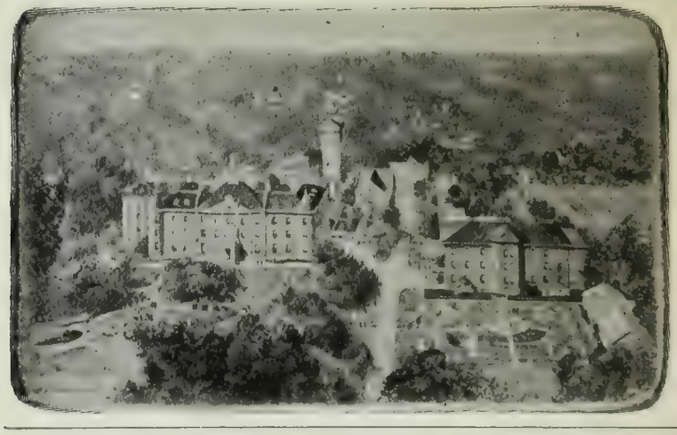

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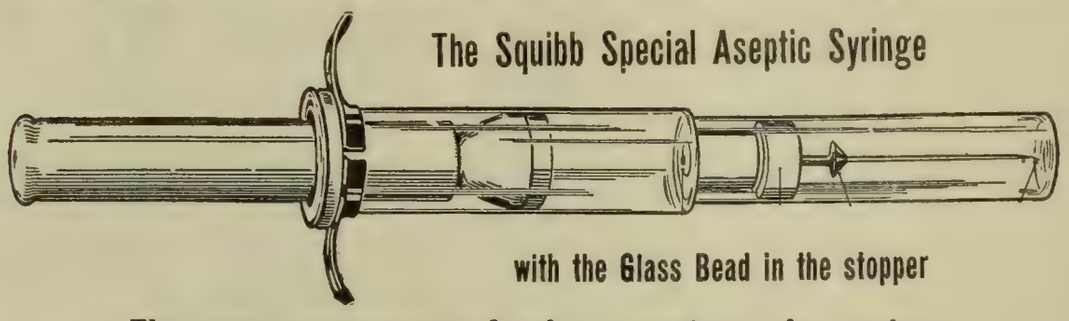

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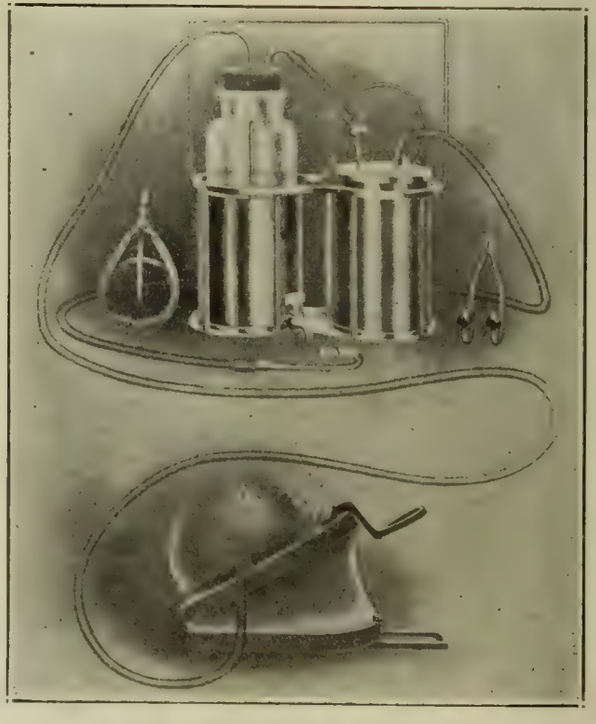

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Volume VII OCTOBER 1, 1914 Number 10

ORIGINAL ARTICLES

MEDICO-LEGAL RELATIONS OF PELLAGRA.*

By J. W. Babcock, M.D.,
The Waverley Sanitarium, Columbia, S. C.;
Formerly Physician and Superintendent
South Carolina State Hospital
for the Insane.

The general parallelism to be found in the history of pellagra in the Old and the New World, although striking, is perhaps after all merely corroborative evidence of the clinical identity of the disease as found in both hemispheres. In no respect is this historical and clinical similarity more marked than in the little studied, though highly important medico-legal relations of Pellagra.

European.—To Legrand du Saulle,[1] of France, seems to belong the honor of having first directed attention to the importance of this aspect of the malady. He emphasized the fact that from the medico-legal point of view the most salient phenomena of pellagra consist in vertiginious crises, in acts of violence, and in irresistible impulses to homicide and suicide. Following up the study of the jurisprudence of pellagra in 1865, Sorbets[2] wrote: "This is a question which calls for the investigations of all physicians living in countries where they meet with cases of pellagra." It was doubtless a painful confession for the distinguished Landouzy to make when he said: "I have since been convinced that I once allowed to be executed for homicide a woman, who, without doubt, had committed the deed during an attack of pellagrous insanity." After his life-long experience with the disease, and with the insane, Lombroso left the opinion that "A common symptom of pellagra is the tendency to unpremeditated murder or suicide without the slightest cause. The sight of water suggests drowning in the form of murder or suicide." Or as Marie[3] says: "Suicides by drowning are numerous also by reason of a kind of motor automatism or instinctive impulsion similar to attacks in epileptics. They do not know when they throw themselves into the water, and if they survive they cannot explain their attempt." This "hydromania" of Strambio, that is, the impulse of pellagrins to drown themselves, has been discussed by all writers upon the disease since his time (*circa* 1785). Sorbets,[2] however, takes a more comprehensive view of the subject in asserting that "Nothing is more capricious or variable than pellagrous insanity. Almost all pellagrins experience a special *penchant* to drown themselves, although others perish by strangulation, or throw themselves from high places, or, according to Soler, into the fire." And he adds: "But it is not only against themselves that pellagrins direct their insane acts; under the in-

*Read by title at the second triennial meeting of the National Association for the Study of Pellagra, Columbia, S. C., November, 1912.

fluence of homicidal monomania they have other victims. Thus, then, pellagra is a malady in which, at an undetermined stage, the intellectual faculties are obliterated, abolished or obtunded. The patient does not properly judge his condition, his position, or his relationship to his environment; he commits the most reprehensible acts without motives, and this is the most convincing proof of his insanity. One who commits murder from personal interest, for robbery or from revenge, is not in the same category as one who commits homicide because of an accidental derangement of his mental faculties, and without an interested motive. This is the fundamental principle of all legislation which excuses the acts of the insane. . . . Thus pellagrins, who are attacked by well established pellagrous insanity . . . have obeyed a power, a force which they cannot resist, and, hence, do not come under the penalty of the law. This is the point of view which it is necessary to recognize regarding this grave question, which concerns the dignity of families, and the honor of justice." To this may be added the opinion of du Saulle[1]: "Pellagrins, for example, who obey homicidal impulses, which so frequently accompany their insanity, have been condemned as murderers, and this with the consent of medical experts, or at least it is in accordance with the conclusions of their reports, that these unjust sentences have been pronounced."

Antonini,[4] the Italian alienist and pellagrologist, has written that: "In pellagrous regions there are frequent cases in which it is possible to find in indicted persons some outward expression of pellagra, even when the examination is made some time after the actual deed or during the progress of the trial. * * * To the expert alienist it will not be difficult to establish his case in persons suffering from severe pellagra. Usually these facts will have been recorded by the examining physician who has sent the patient to an insane asylum. But pellagra may be present in an able-bodied farmer who has not felt the need of medical advice."

Legrand du Saulle[1] has suggested as a method of inquiry that "In examining a criminal suspected of pellagra, the expert would naturally inquire whether the act committed presented any relation to the delirious manifestations, hallucinations and impulses which are ordinarily observed in this affection; if he has been able to find it under the direct dependence of maniacal excitement, stuporous depression or dementia, the three common forms of pellagrous insanity; if it were done at the time of vernal exacerbations; if insolation was an etiologic circumstance; if the tongue shows signs of a gastric involvement; if the hands present the pathognomonic erythema; if vertigo preceded for several days; if he shows locomotor vacillation, and if previous suicidal attempts have been made as shown by cicatrices."

Mongeri,[5] another Italian authority, has summed up his views upon the responsibility of pellagrins in these words: "The legal measures, civil and criminal, which a magistrate ought to apply, and the expert request for the benefit of pellagrins are various: while a pellagrin is in the early erythematous stage, it is not possible to raise in a court of justice the question of his enjoying the full use of his mental faculties; therefore, it would be difficult for one to appeal for an attenuation of punishment for an alleged criminal upon the single fact that he has the pellagrous erythema. When, however, the disease-process has become complete, and mental disturbance is added to the physical phenomena, one would be obliged to appeal for a stay of proceedings in a court of justice, and absolute irresponsibility in an institution because there are moments when the pellagrin so completely loses his power of self-control as no longer to be able to restrain himself from doing a criminal act."

But Legrande du Saulle[1] directed attention to an unusual evolution of pellagrous insanity by asserting that "Although mental alienation

is usually a late manifestation in cases of pellagra, it sometimes precedes the development of gastro-intestinal and cutaneous symptoms. Two such cases were noted by Strambio and one by Landouzy."

Civil Capacity.—Sorbets[2] reached the conclusion that: "Examined from the point of view of the civil consequences, pellagra is a great peril. After what has been said of the nature of the insanity, one may easily divine that the isolation, the melancholy depression, and the ideas of persecution can undermine at any time the free will of a donor, or the capacity of a testator, or give opportunity for the base intrigues of adventurers."

Diagnosis.—As noted by Lombroso, and quoted by Marie[3]: "Frequently the pellagrous psychosis appears under the form of a special melancholia, more often in the form of an insanity with systematized delusions. This last form may be observed in hereditary pellagra; vagaries of memory, self-accusations, nosophobia, apprehensions of personal violence, delusions of pregnancy, loss of personality, and concealment of sex, have all been noted.

"A woman of Seronno, 38 years old, confided mysteriously to the judge that she had been violated, and had become pregnant. She believed that she had given birth to a child, and then, with the help of her seducer, had buried it alive; for three months she led the officers of justice to many places in search of the little corpse; when finally a medical examination revealed that she was a virgin suffering from pellagra." Sorbets[2] affirms: "For alienists, hallucinations are the chief characteristic, the pathogomonic phenomenon of pellagrous insanity."

It was the opinion of Legrand du Saulle[1] that pellagrous insanity cannot be simulated with any degree of success by virtue of the multiplicity of the phenomena which it assumes from time to time. From his researches upon the subject, du Saulle advanced these propositions: 1. In pellagrins, whose intelligence has become affected, the insanity often undergoes transformations, but impulses to homicide and to suicide persist, and aid in clearing up the medico-legal diagnosis. 2. Psychic disturbances precede in some cases the alterations of nutrition and the cutaneous phenomena, and this circumstance, especially, if pellagra is sporadic, exposes the medico-legal expert to grave errors, which examination extended over a considerable time can alone enable him to avoid. 3. Pellagrous insanity well verified establishes in criminal procedure irresponsibility for the acts committed, and in civil cases the just suspicion of agreements, contracts, benefactions and wills.

Among the crimes recorded in Europe, as committed by pellagrins, are suicide, homicide, infanticide (Alpago-Nevello[8]), kleptomania (Tambourini[9]) and false accusation. Reference has just been made to some of the civil cases that may arise in connection with the disease.

To sum up we may quote Sorbets[2]: "Well established pellagrous insanity implies in criminal law irresponsibility for the acts committed, and in civil law raises the just suspicion of sales, contracts, donations and wills."

Egyptian.—Dr. John Warnock,[6] Director of the Government Hospital for the Insane near Cairo, reported in 1903: Fifty-two patients suffering from pellagrous insanity were admitted, of whom seven were criminal lunatics. Delusions of persecution, of being put under a spell, or of being poisoned, etc., are frequent mental symptoms of this malady, and it is therefore not surprising to find that five murders were committed by these patients before being sent to the asylum as criminal lunatics. In 1902, also, two murders committed by men suffering from pellagra occurred to my knowledge. These patients are very prone to suicide and to injure their children. It is to be regretted that so many of them have to be sent back to their homes before recovery, especially as prolonged treatment would appear to cure a certain proportion of cases."

Sandwith,[7] from his experience with pellagra in Egypt, has noted "That many crim-

inal lunatics, brought to the Cairo Asylum, are found to be pellagrous; they have been arrested for some purposeless murder in consequence of delusions which they forget and deny a few days after admission. One such case was said by his family to be quiet generally, but to have violent outbreaks every winter. He remained melancholic, but quiet at the asylum for eleven months, and then suddenly (in January, 1904) attacked another patient without warning, and would have killed him if the attendants had not interfered; his excuse was that the man was beginning to persecute him."

American.—So far as I have been able to learn, the medico-legal side of pellagra has hitherto not been discussed separately by American writers, although much activity has been shown regarding most of the other aspects of the disease. To show that the history of pellagra, in this respect also, has been repeated in our country, I beg leave to submit a number of brief outlines of cases compiled from newspaper reports from many parts of the United States, as well as from medical journals and selected from personal experience:

At the July, 1913, term of court in Chester, S. C., the jury brought in the verdict of "Not guilty of murder on account of insanity" in the case of the State vs. Richard R. Reighley, who had killed Freeman A. Wright several months previously. The attorneys for the defense showed that the accused was suffering from insanity attributed to pellagra. The solicitor (prosecuting attorney) accepted the evidence of Dr. H. E. McConnell upon this point. The manuscript of this paper was also used and quoted by the attorneys at the trial. Reighley was acquitted as stated above. He was subsequently committed to the State Hospital for the Insane by the presiding judge and found to be a confirmed pellagrin.

I have notes of another case of homicide by a white woman, who, in November, 1909, it was alleged, shot the Postmaster of a Middle Western town without warning, while suffering from melancholia "brought on by rheumatism and pellagra." The records of the court, however, do not establish the presence of pellagra in the case, nor was it referred to by the defense. The patient was placed in an asylum.

Near Grayson, La., September 9, 1913, Mrs. R. S., in the last stages of pellagra, was reported to have become insane and to have made several ineffectual attempts upon the lives of her children, as well as upon her own life. Although regarded as a constant menace to her family, in view of the fact that she appeared to have only a short time to live, her friends decided to watch her and not commit her to an asylum.

Suicides by pellagrins have frequently been reported by the newspapers. These reports usually employ such adjectives as "dread," "incurable," *et cetera,* and no doubt, as has been claimed, contribute to the development of the pellagraphobia, which is widespread in some parts of the country. While I confess that the presentation of the notes on these cases forms a chapter of horrors, yet taken together they make a part of the early history of pellagra in the United States, and, therefore, are worthy of record. They also serve to emphasize the peculiar relationship which the malady sometimes bears to the body politic.

Mr. T. E., of Lancaster, S. C., 53 years old, a pellagrous mill operative, committed suicide in August, 1911, by drowning in a pond near the mills. His rescue was attempted, but E. refused help, and saying, "I am going to drown," threw himself again into deep water and disappeared. E. was in the last stage of pellagra, and, upon the recovery of his body, it was found that his clothing was weighted with stone, thus indicating premeditation. Despondent because of continued suffering with pellagra, Mrs. M. C., of Spartanburg, S. C., committed suicide by drowning in a pond, August, 1912. I know of three other suicides of pellagrins by drowning in ponds in South Carolina. At Columbia, S. C., April 26, 1914, Mrs. J. L. T., a pellagrin, was found dead in a bath tub in her home at 6 a.m. The cause of

her death was given by the coroner as drowning and the contributory cause as pellagra. Miss K. T., of Cross Keys, Ga., ended her life June 5, 1913, by jumping into a well. "She was a victim of the dreaded pellagra." She left a note saying: "I have decided to end my suffering by seeking death. You will find my body in the well next door." The "hydromania" of Strambio would thus appear to prevail in this country as it does in Italy. In the "pellagra belt"—if there be any limitation to the widespread prevalence of the disease—it would, therefore, be well to consider this malady as a possible cause in cases of "inexplicable" drowning. In insane asylums both white and colored pellagrins, especially the women, are prone to attempt suicide by drowning in bath tubs.

I have notes of a female pellagrin, Mrs. X., a surgical patient in a general hospital at the same time with her baby, who had "marasmus." Being in a different ward from her child, she worried a great deal over the separation, became noisy day and night and finally developed the homesickness so characteristic of pellagra. She was frequently detected by the nurses filling the ward bath tub and turning on the gas. Because of these tendencies she required constant watching, but she was finally taken home before the occurrence of a serious accident. Her subsequent history is not known to me.

Other methods of suicide by pellagrins have also been reported. Among these may be mentioned: That of Mr. M. K., of Society Hill, S. C., in October, 1910, by hanging; of Mrs. C., of Tennessee, July, 1911, by carbolic acid; of Mrs. B., of Wiggins, Miss., who, having had pellagra eighteen months, became suddenly insane in September, 1910, and tried to commit suicide; of Mrs. J. H. M., of Gainesville, Ga., who, in October, 1910, becoming despondent because she believed she would never recover from pellagra, committed suicide; of Mrs. E. H., of Greenwood, S. C., a pellagrin, who, in October, 1910, attempted suicide by slashing her throat with a pocketknife. In August, 1911, Mr. T. B. B., 53 years old, a respected citizen of Birmingham, Ala., and a pellagrin, cut his throat with a razor. Desperate and insane as a result of pellagra, W. A. G., of Durham, N. C., October, 1911, shot himself in the head with fatal result. At Milledgeville, Ga., in March, 1912, A. W., aged 72 years, an insane pellagra patient under private care, threw himself under a freight train and was instantly killed. The attendant in charge of him attempted to pull him from the track, but W. held on tightly to the rail and was beheaded.

In November, 1912, Mrs. J. P., of Columbus, Ga., aged 30 years, having been mentally deranged from pellagra for some time, committed suicide by stabbing herself in the left breast with a pocketknife. She had previously made two or three unsuccessful attempts upon her life, and, although closely watched, she finally succeeded with a knife she had borrowed to peel an orange. At Stantonsburg, N. C., in November, 1912, W. J. E., 35 years old, a well known citizen, having been ill for several years with pellagra, killed himself by drinking wood alcohol. It is supposed he had grown despondent over his condition and committed the act impulsively during the brief absence of his wife. In June, 1913, Mary G., colored, and a pellagrin, whose mind had been slightly impaired for some time, after writing directions concerning her five children, committed suicide by hanging. This is the more noteworthy, as suicide among the colored race is comparatively rare. I have records of a negro man "who beat his brains out against the walls of a house," the cause assigned for his act being pellagra. In April, 1913, it was reported from Wichita Falls, Tex., that R. N. M., a retired farmer, 52 years old, and a sufferer from pellagra for some time, was found dead in his barn with two bullet holes in his breast. He left a note addressed to his wife saying he thought he was acting for the best. Mr. W. M. M., a carpenter, aged 52 years, committed suicide by drinking carbolic acid at Spartanburg, S. C., November 14, 1913. He

had been ill with pellagra for a year. Despondent over his inability to work at his trade, he ended his life in the temporary absence of his daughter, with whom he was living. These citations from newspaper accounts show the frequency of these tragedies arising from pellagra among the general population. Aside from their medico-legal value, may they not serve also to put physicians on their guard for symptoms of depression when treating pellagrins?

I have also known of an alienated white female pellagrin committing suicide by hanging herself from a window grating by her own hair, and a few strands of twine which she had concealed.[10] A white female pellagrin in a general hospital, while depressed over her condition, which she regarded as hopeless, drank, with suicidal intent, a quantity of alcohol which she seized from a nurse's basket. Soon after her removal home, she drank a half pint of whisky and two ounces of tincture of nux vomica with the same object. Later she ran away from home at night, and was found lying in a shallow pool of water in the road. These acts necessitated her confinement in an institution. Her asylum residence lasted about eight months, and was marked by frequent suicidal attempts. She gradually improved, and, having partially recovered, was finally taken home against advice. It is rumored that she is now well.

The obsession for self-destruction is thus shown to be very common with pellagrins in this country, and while we must recognize their strong inclination to drown themselves (the "hydromania" of Strambio), in view of the many other methods of suicide to which they resort and of their homicidal tendencies it might be well to adopt the single term of thanatophilia as applying to the compulsion for ending life, which so often dominates their will and conduct.

In September, 1912, I saw an interesting case of self-mutilation in a white male pellagrin, who was insane: E. T. B., 35 years old, having had pellagra five years, and having been in an asylum about two months, suddenly bit off the tip of his tongue and the tip of the index finger of the left hand nearly up to the base of the nail, and tore off the nails of the little and ring fingers of the right hand. Usually mute and always reticent, he, after much persuasion, explained the reason for his act by saying, "I did it because I could not help it."

Another case illustrating compulsion is that of Mrs. A. B. B., 42 years of age, admitted to our State Hospital September 5, 1913. She had been in failing health since the previous January. Although pellagra was not suspected, for several months her conduct had been such that she had to be watched. She once aroused her husband at night, saying: "Wake up and let me tell you what I was trying to do; when I came to myself I was trying to get the oil can to burn the house." In August she attempted to throw herself from a window of a tall building, and on being rescued, said: "Just let me alone, I am crazy." On being taken home she deplored her actions and did not appear confused. Upon admission to the hospital, examination disclosed rough skin on the backs of her hands and fingers. The mucosa of her mouth was fiery red, the tongue denuded, and there was decided salivation. She acknowledged that she had pulled out her eyebrows and complained of constipation and loss of appetite. Under treatment she improved rapidly, having gained 43 pounds when she was taken home, October 11, 1913, about five weeks after admission.

Dr. Eleanora B. Saunders, while woman physician at the South Carolina State Hospital, reported[10] a case of medico-legal interest, which, in brief, is that of Mrs. P., 33 years old, with mental aberration, appearing late after an attack of pellagra in 1910. Among other symptoms the patient imagined herself pregnant and had a uterine "crisis," lasting three hours, the pains, to an observer, being typical of labor. For some weeks afterwards she insisted that she had been delivered of a child, and expressed great anxiety for its safety, accusing the physicians of cruelty in removing

and concealing it from her. These delusions of pregnancy are not unusual among insane pellagrins, suffering from uterine and perineal lacerations. The fact is brought out here to show, in connection with Lombroso's case cited above of the woman of Seronno, that pellagrins with such delusions are especially prone to make false accusations, both against themselves and others. Obviously the modern conception of pathological liars—pseudologia phantastica—is suggested and should also be considered here.

Dr. D. M. Crosson, of Leesville, S. C., has given me this personal communication of the history of a pellagrin who has been under his observation for some time. Mrs. M. R. P., 45 years of age, the mother of six children, the youngest being now ten years old, has had pellagra for four years. Latterly she has developed the delusion that she is about to be confined. Influenced by this idea, within the past year she has summoned her physician six or seven times. She appears to be having labor-pains and asks to be delivered. Examination discloses absence of pregnancy. She has hemorrhoids, but no pelvic lacerations. No other delusions were discovered.

At Nashville, Tenn., in November, 1911, J. F. W. and wife filed a bill in the Chancery Court against H. H. R., praying that an exchange of land for notes be declared void and that the transfer be set aside because the plaintiff was a sufferer from pellagra at the time of the transaction, and was not of sufficient soundness, mentally, to protect himself in the trade. Under date of September 18, 1912, I was informed by Robert Vaughn, Esq., Clerk and Master of the Chancery Court at Nashville, that "From an inspection of the depositions in the case of W. vs. R. I see that two physicians were introduced, who stated in a general way that patients suffering with pellagra, in addition to marks upon the hands and other portions of the body, which are characteristic of the disease, also had bowel trouble and frequently the mind became involved or impaired. The cause has not been tried yet by the court, hence there has been no decision as to what extent, if at all, the complainant, W.'s, mind was affected by pellagra." On March 31, 1913, this case was still on the docket, having never been heard or disposed of.

Instances are known of asylums in which the diagnosis of pellagra having been overlooked, nurses have been unjustly discharged for alleged neglect in bathing patients, the pellagrous erythema being mistaken for burns and scalds. In doubtful cases of this nature pellagra should be considered as a possibility.

Dr. J. J. Watson, of Columbia, S. C., thinks a large proportion, probably 90 per cent, of the pellagrins he has had under care in a general hospital, prevaricate or fabricate. Especially is this noticeable in their complaints against nurses for alleged omissions of the treatment ordered or for improperly carrying out the physician's directions. Investigation has proven all such charges and suspicions to be without foundation. Sometimes this mental attitude of pellagrins suggests the fabrication of Korsakoff's syndrome. The hysterical character is also suggested. It seems to arise either from amnesia or else from hallucinations. It obviously is not due to a malicious desire to make mischief.

The liability of pellagrins seemingly convalescent, to sudden death, deserves to be brought to the attention of medical examiners and coroners. A similar tendency has been noted in beri-beri. In pellagra these attacks may simulate angina pectoris.

Naturally, the question arises: To what extent are these criminal, abnormal or unusual tendencies due to pellagra *per se,* and to what extent do they belong to insanity in general? I shall not undertake to answer this question narrowly. In many of the cases cited the two conditions of pellagra and insanity have been co-existent, and in most of them the insanity appears to have followed the pellagra. The inter-relationship of the two conditions is a separate question, and properly does not belong here. My own opinion is that the several acts described in this paper have arisen from

a mental condition due to the pellagrous intoxication, which has either greatly modified or nullified individual responsibility.

The cases cited here have occurred in eight States—North Carolina, South Carolina, Georgia, Tennessee, Alabama, Mississippi, Louisiana and Texas—and they necessarily must constitute but a small proportion of those actually occurring in this territory and in this country in the last three or four years, and associated with pellagra, since they have been compiled by a single student of the subject. But collectively they demonstrate the variety of abnormal actions which have been attributable to the unknown poison of pellagra. Furthermore, these actions duplicate, in a general way, those reported by foreign observers.

It thus appears that evidence is slowly accumulating which goes to prove that the history of pellagra is being repeated in the United States and that among other burning questions which its discovery has aroused, that of the medical jurisprudence of the disease is one with which the general practitioner, the neurologist, the alienist and the jurist will have to reckon. Certainly, as Sorbets[2] said: "This is a question which calls for the investigations of all physicians living in countries where they meet with cases of pellagra."

In conclusion, I quote again from Sorbets[2]: "From the medico-legal point of view, pellagra, as one sees it, raises a grave question which touches the highest interests of society, of ethics and of justice—interests which are most dear to man: the life of citizens and the honor of families. This question, first introduced by Legrand du Saulle, has not received the attention it deserves, but it is really a subject of great importance." It is to impress the "great importance" of this phase of pellagra upon American students of the disease at this comparatively early stage of our researches upon the malady that this paper has been prepared.

ACKNOWLEDGMENT.

My thanks are especially due to Surgeon C. H. Lavinder, U. S. Public Health Service, for the privilege of consulting the valuable press clippings on pellagra, collected by his bureau, without which the preparation and presentation of the American side of this question would have been impossible. For many favors I have again to record my gratitude to the officers of the Library, S. G. O., Army Medical Museum, Washington, D. C.

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BACTERIOLOGICAL EXAMINATION OF KNOXVILLE MILK AND ITS PRACTICAL APPLICATION TO THE DISCOVERY AND ELIMINATION OF THE ETIOLOGICAL FACTOR IN SOME OF THE DISTURBANCES OF THE INFANT.

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Since cow's milk is the natural substitution, in the diet of the artificially fed infant, for mother's milk, we are compelled to consider the normal and abnormal bacteriology of this milk as of first importance. With this idea in mind I have attempted to analyze the Knoxville milk and to show the practical application of such analyses to the discovery and elimination of the etiological factor in some disturbances of the infant. In this article I shall give the number of bacteria present at the time of collection, the increase in the number of organisms under different conditions, the predominating bacteria, the acidity immediately after collecting and again in twenty-four hours, pre-

servatives, if any, and, in conclusion, my findings and treatment in several cases, the causes of which were traced to stale or infected milk. In a later paper I intend to classify, as nearly as possible, the rarer types of bacteria found.

TYPES OF MILK EXAMINED.

Pasteurized and raw milk were examined. The pasteurized milk is of two types. One of these is heated by the "Holding system," which is in operation in one of the creameries. This consists in raising the milk to 140 degrees Fahrenheit, holding it at that temperature for thirty minutes, and then quickly cooling it to 45 degrees Fahrenheit by letting it run over enclosed cold pipes. The other type is produced by the "flash system." This consists in heating the milk to 160 degrees Fahrenheit and then cooling it as rapidly as possible by running it over cold pipes to 45 degrees Fahrenheit. Specimens were from the milk as it came out of the pasteurizer. Samples were also taken from the tank just before pasteurization to show the effect of the heating upon the number of bacteria. Since this milk is delivered to the stores in the afternoon and is for sale the same day and the next morning, samples were bought the morning following pasteurization to show the increase of bacteria at the time of sale under the store methods of refrigeration. Raw milk was taken under two conditions. First, as delivered to the creameries by the farmers early in the morning; and, secondly, as delivered to customers by the dairy wagons at any time during the day.

METHOD OF COLLECTING.

The milk was poured from the container into a sterile receptacle (usually two fifty cubic centimeters test tubes), placed upon ice and delivered to the laboratory at once. The milk was always kept at 45 degrees Fahrenheit, or below, until ready for examination. The platings and titrations were usually finished in thirty minutes after the arrival of the samples at the laboratory.

TECHNIQUE OF EXAMINATION.

So that the results may be accurately interpreted, the technique as followed will be given.

METHOD OF PLATING AND COUNTING.

1-10 c.c. raw milk in 100 c.c. (10 c.c. if pasteurized milk) sterile water. Mix thoroughly.

1-10 c.c. of this dilution is dropped in a Petri dish.

10 c.c. agar is poured over this. Agar at 45 degrees C. Mix.

Incubate at 38 degrees C. for 24-48 hours.

Count over black plate ruled in centimeters.

Multiply number of colonies on plate by 10-000.

1-10 c.c. of dilution plated in 10 c.c. of blood agar to show hemolyzing colonies.

ACIDITY.

On delivery and again in 24 hours.

50 c.c. milk titrated against decinormal sodium hydrate.

1 c.c. phenolphthalein (2 per cent) as indicator.

Multiply the result by two. The product is the acidity of 100 c.c. of the sample in terms of decinormal sodium hydrate.

SMEARS.

From samples, at once and again in 24 hours, on glass slides.

Fixed by heat and flooded with xylol to remove the fat.

One slide stained with Wright's stain. This shows the leucocytes (or pus cells, whichever they may be considered) and the bacteria in a very clear-cut manner.

The other slide is stained by the Gram method and counter-stained with pyronin.

SPECIAL MEDIA.

Fishel colonies from plates at the end of 24 hours and transferred to special media, the kinds used will be given in the types and characteristics of the bacteria found.

PRESERVATIVES.

The milk stood over night at room temperature, and if it soured it was considered free from preservatives. All samples, however,

were tested by the method of Leach[1] for formaldehyde. This test is capable of detecting one part of the preservative in 250,000 parts sweet milk and one part in 50,000 of sour milk, according to Kastle and Roberts.[2]

The test of Leach for formaldehyde is:
Milk, 5 c.c.
Water, 5 c.c.
Hydrochloric acid (conc.), 10 c.c.
Heat slowly.
Purplish color appears if positive.
In all 502 specimens were examined.

ORGANISMS ISOLATED.

Only the more prevalent bacteria have been isolated and identified so far. The classification of the normal milk organisms is that given by Vincent,[3] as I consider this the simplest and most understandable. The more common bacteria isolated are:

Streptococcus lacticus in 422 specimens. This is a Gram positive, lactic acid producer but does not produce gas. It often grows in chains and is the typical organism growing in milk at 38 degrees centigrade. It is of two types, one resembling the streptococcus pyogenes and the other the pneumococcus.

Bacillus lacticus in 307 cases. This is usually a long, thin bacterium Gram positive, produces acid, but not gas in milk. It often contains granules and then it resembles the bacillus diphtheriae. It appears when the acidity is too great for the streptococcus lacticus.

Bacillus coli communis in 201 samples. This often predominates in filthy milk, and when this is the case the curd is pitted and bubbles are seen throughout. I have found that all this group produces gas in milk, but less than half that I have isolated are lactic acid formers.

Bacillus acidi lactici (Hueppe) in 91 specimens. Gram negative forms acid and gas in milk and the curd is pitted in 24 hours at 38 C.

Streptococcus pyogenes in 26 cases. All these hemolyzed human blood agar and this is the only method of distinguishing it from the streptococcus lacticus, in my opinion.

Staphylococcus pyogenes aureus, 12 times.
Micrococcus tetragenus, 4 times.
Large Gram positive coccus, 18 times.
Bacillus pyocyaneus in one sample.
There were many other organisms which, as yet, I have not identified.

NUMBER OF BACTERIA.

The tables giving the number of organisms is entirely too bulky so I shall just give a synopsis of the counts.

Pasteurized by the flash method, just after pasteurizing, 34 samples.
Over 1,000,000 bacteria, 9 samples.
Between 100,000 and 1,000,000, 20 samples.
Below 100,000, 1 sample.
Highest, 2,130,000.
Lowest, 37,000.
Average before pasteurization, 5,021,000.
Average after Pasteurization, 1,083,000.
Average decrease, 3,938,000.
As bought from the stores in bottles (flash method). Pasteurized the day before;
Over 1,000,000, 9 samples.
Between 100,000 and 1,000,000, 7 samples.
Below 100,000, 1 sample.
Highest, 3,400,000.
Lowest, 49,500.
Average increase over the same milk at time of pasteurizing, 641,000.
Pasteurized by the holding method, put in tubes from holder, 5 samples.
Before, 1,100,000; after, 1,000.
Before, 5,130,000; after, 21,000.
Before, 3,640,000; after, 13,600.
Before, 4,210,000; after, 5,400.
Before, 5,780,000; after, 701.
Average decrease, 4,229,000.
Raw milk as delivered at the creameries, 352 samples.
Over 10,000,000, 14 samples.
Between 1,000,000 and 10,000,000, 264 samples.
Between 100,000 and 1,000,000, 58 samples.
Between 50,000 and 100,000, 6 samples.
Between 20,000 and 50,000, 8 samples.
Below 20,000, 2 samples.
Highest, 15,000,000.
Lowest, 11,000.
Raw milk as delivered by dairy wagons to customers, 94 samples.
Over 10,000,000, 24 samples.

Between 1,000,000 and 10,000,000, 62 samples.
Between 50,000 and 1,000,000, 6 samples.
Below 50,000, 3 samples.
Highest, 22,650,000.
Lowest, 42,500.

ACIDITY OF MILK.

The acidity is expressed in terms of decinormal sodium hydrate.

PASTEURIZED MILK—FLASH METHOD AT THE CREAMERIES.

Over 20 degrees, 11 samples.
Under 21 degrees, 20 samples.
Highest, 25 degrees.
Lowest, 17½ degrees.
Increase in acidity in twenty-four hours at 38 C., 32.5 degrees.
Increase in acidity in twenty-four hours at room temperature, 23.5 degrees.
Flash method, samples bought at the stores the morning following pasteurizing:
Over 30 degrees, 1 sample.
20-30 degrees, 4 samples.
Under 20 degrees, 11 samples.
Highest, 33 degrees.
Average increase in acidity over that at the time of pasteurization, 3.2 degrees.
Average increase in twenty-four hours after collection at 38 C., 40 degrees.
Average increase in twenty-four hours after collection at room temperature, 31.5 degrees.
Holding method. At the creamery:
In all five samples were examined, the lowest being 13 degrees and the highest 29.5.
Average increase at room temperature in twenty-four hours, 29 degrees.
Raw milk as delivered at the creameries:
Over 30 degrees, 21 samples.
Between 20 and 30 degrees, 62 samples.
20 degrees or below, 68 samples.
Average increase in acidity in twenty-four hours at 38 C., 40.9 degrees.
Average increase in acidity at room temperature in twenty-four hours, 32.8 degrees.
Raw milk as delivered by dairy wagons to customers:
Over 30 degrees, 16 samples.
From 20 and 30 degrees, 28 samples.
Under 20 degrees, 4 samples.
Highest, 33 degrees.
Lowest, 16 degrees.
Average increase in acidity in twenty-four hours at 38 C., 41 degrees.
Average increase in acidity at room temperature, 30.5 degrees.

INCREASE IN BACTERIA.

The increase in bacteria varies greatly with the temperature and with the numbers in the milk at the beginning of the experiment.

PASTEURIZED MILK—FLASH METHOD.

10 samples at 38 degrees C., averaging 112,000, in three hours, 645,000.
10 samples at 20 degrees C., averaging 112,000, in three hours, 310,000.
10 samples at 20 degrees C., averaging 160,000, in twenty-eight hours, 8,610,000.
10 samples at 38 degrees C., averaging 820,000, in five hours, 6,500,000; in eight hours, 12,200,000; in twenty-four hours, 22,450,000.
10 samples at 20 degrees C., averaging 1,680,000, in five hours, 2,150,000; in eight hours, 5,200,000; in twenty-four hours, 7,100,000.
Raw milk, 10 samples of each:
No. 1, 2,980,000 in twenty-four hours at 20 degrees C., 6,390,000.
No. 2, 1,000,000 in twenty-four hours at 38 degrees C., 6,220,000.

I have noticed that in those samples in which the acid was high the increase in bacteria was less than in those in which the acidity was lower. This may account for the fact that the bacteria increase more rapidly in pasteurized milk, as I have found that the acidity of raw milk increases more rapidly than that of pasteurized milk.

I have found that the lactic acid organisms always persist after heating to 145 F. for thirty minutes. So the contention that well pasteurized milk is more dangerous than raw milk I cannot believe. But I do believe that boiled milk is an unfit food for infants unless it is kept on ice, for in fifty samples I have demonstrated the bacillus aerogenes capsulatus and the bacillus putrificus, which Vincent[4] considers to be very irritating to the intestinal tract, and in twenty-one cases I have found the spore-forming organisms, which, according to Vincent,[5] "produce powerful alkaloidal poisons in the intestines and cause coma and death."

CONCLUSIONS FROM THE EXAMINATIONS.

If Ayers[6] is correct in that 99 per cent of the bacteria should be destroyed by pasteurization, then the flash method should be discarded, for

oftentimes not over 50 per cent are killed by this process. A study of the above results shows the poor condition of Knoxville milk and that the pasteurized milk is little better, as far as the bacteria count is concerned, than the dairy milk. As a rule, on Monday morning the milk delivered at the creameries is high in acidity and bacteria counts, and the only conclusion that I have been able to arrive at is, the milk from Saturday night to Monday morning is delivered together. Milk is accepted by the creameries that is curded, but it seemed to pass the tasting test. This test is carried out by the receiver, who dips his finger in the milk, put it in his mouth, rubs it off on his overalls, and then repeats the process on the next specimen. Not one dairy wagon was found in which the milk was iced, even though the milk were not delivered until afternoon. Such conditions favor the rapid multiplication of bacteria and the high counts are not at all surprising. If these organisms were all saprophytes the condition would be bad enough; but when we learn that over 7 per cent of the specimens examined contain pathogenic bacteria, it seems to me that milk examinations should be routine in all infantile cases of "sore throat" and gastro-intestinal disorders, at least. Some authors[7] seem to think that the number of bacteria in the food is of little importance in comparison with high atmospheric temperatures as an etiological factor in gastro-intestinal disturbances. Of course, the heat assists in bringing on the condition, but I cannot agree that it is the more important. In the years 1905, 1906 and 1907 I experimented with the feeding of about 200 little pigs, ranging in age from two weeks to two months, and the conclusions that I arrived at were: That feeding stale milk always caused diarrhea, the younger the animal the more severe the condition, and that boiling the milk (no matter how sour) for twenty minutes and feeding this, with all other conditions the same, caused the intestinal disturbances to disappear in a few days in the older ones and usually inside a week in the younger ones. These results were obtained both winter and summer. In 1912, when I was connected with one of the Elizabeth McCormick memorial tents in Chicago, there were one day eleven babies in the tent. Stale milk was fed by mistake to four of the babies. The following morning these developed a severe diarrhea, vomiting, and a low fever. Three were on full feed by the end of fourth day, but one did not recover fully before the end of the third week. The other seven infants under the same conditions, except for the feeding, had no such disturbances. I examined the milk and found it to contain 7,640,000 bacteria and had an acidity of 41. Several times the mothers did not put the night milk on ice and the diarrhea which usually followed soon stopped when ice was obtained for the milk. In many cases coming to the dispensary, the only cause that could be found in the diarrheas was stale milk, and in such cases when the milk of the station was substituted, and carefully kept—a rapid recovery followed. In the dispensary and admitting room at the Children's Memorial Hospital in Chicago, we were always careful to inquire into the care of the milk in gastro-intestinal troubles and often stale milk was assigned as the cause. At the Brookside Dispensary in Knoxville during the last year, in sixteen cases these troubles readily disappeared with no other treatment than properly modified milk of a good grade. At the Lincoln Memorial Dispensary, in six cases of diarrhea, I attributed the cause to milk of a high bacterial count. On fresh, clean milk these cases readily recovered. In five cases of "septic sore throat" I have traced the cause to the milk supply. In each case the hemolyzing streptococcus isolated from the milk was the same, morphologically and in its reaction to the different media, as that found in the throat of the infant.

Case No. 1—Female, age 3 months, weight 3 pounds, 6 ounces. Family history negative. Past illness, more or less "colicky" since birth. Feeding: Nursed at breast for two weeks, but was put on cow's milk when mother was told that her

milk was "poisonous." Present feeding consists in cow's milk 1-3 and tap water 2-3. Feeds every time the baby cries. Milk: Fresh cow's, and kept on ice. Bottles and nipples not boiled.

Present trouble: Has been treated for meningitis (no spinal puncture made) for two weeks. losing weight for three weeks. No appetite and vomits what little it does eat. Stools: 10-20 daily, small in amount, green and watery, sour odor.

Examination: Temperature, 97.6; pulse, 86; respiration, 26. Very much emaciated. Evidently in pain. Legs drawn up and seems to cramp. Head: Eyes sunken, pupils dilated; otherwise negative. Ears and nose negative. Face drawn. Mouth: Tonsils enlarged and hyperaemic. Pharynx reddened. Neck: Anterior cervical glands enlarged, meningismus. Chest: Heart and lungs negative. Abdomen: Rather hard and retracted; peristaltic waves can be seen distinctly. Extremities: Negative. Reflexes: Normal. Skin: Dermatitis about the buttocks; slight vesicular rash on back. Von Pirquet test: Negative. Noguchi's luetin test: Negative. Blood: Leucocytes, 11,000; hemoglobin, 70; reds, 4,120,000. Stool: Green, watery, sour, no curds, little fat, fatty acids, starch. Gram-positive bacilli and streptococci predominated. In milk: In eight hours gram-positive streptococci abundant and in long chains. Urine: Albumin, blood and few blood casts. Phenol-sulphone-phthalein test: First hour, 24 per cent; second hour, 16 per cent; fourth hour, 22 per cent. Throat culture: Streptococcus pyogenes.

The milk was examined with the following result:

Count: 7,900,000 bacteria to the c.c. Streptococcus pyogenes predominated. Streptococcus lacticus, bacillus lacticus and the colon bacillus were present. The cow (owned by a neighbor) was examined and found to have an infected udder from which a pure culture of streptococcus pyogenes was isolated.

Treatment: Throat swabbed with silver nitrate 50 per cent. Put baby on Eiweiss milch and gradually substituted a modified cow's milk with a count that varied from 19,000 to 75,000. Results: Phenol-sulphone-phthalein test at the end of three weeks was 34 per cent in first hour, 18 per cent in second hour. At the end of the sixth week it was 52 per cent first hour, 22 per cent second hour. Albumin was absent from the urine after the fourth week. Now, four months after I first saw the baby, it weighs fifteen pounds.

No. 2.—Female, age 6 months. Feeding: Modified cow's milk. Baby had been gaining regularly until two days ago. Four days ago mother had changed dairymen. Examination of the milk showed: Count. 15,900,000 bacteria. Bacteria present were the streptococcus lacticus, bacillus lacticus and the colon bacillus.

Treatment: Modified cow's milk same as No. 1. Result: Three days later baby was on full feed.

Nos. 3, 4, 5 and 6.—Ages 6, 8, 9 and 10 months. Follicular tonsillitis of from two to four days' duration. Cultures from tonsils showed streptococcus pyogenes. Milk showed same organism.

Treatment: Silver nitrate 50 per cent, painted on tonsils. Put on milk of low bacterial count.

No. 7.—Baby six months of age. Vomiting and frequent stools. Feeding: Modified milk from cow the parents had just bought. Examination of milk: Count, 9,400,000. Nearly pure culture of streptococcus pyogenes aureus, streptococcus lacticus and colon bacillus present.

Treatment: Modified of low count. Result: On full feed in three days. Gained 4 ounces the first week, and has gained steadily for two months.

In all, since October 1, 1913, I have had twenty-two cases of gastro-intestinal disorders, the cause of which I have traced to the milk supply. With one exception, the treatment has consisted of modified raw milk of a low bacterial count (we have no certified milk here, so I have considered any milk with a count below 50,000 as good), feedings at four-hour intervals, two baths a day in hot weather, and keeping the patient free from insect bites. The milk was examined weekly. No medication whatever was given in seventeen cases, and the recovery was prompt and satisfactory.

MILK FOR ARTIFICIAL FEEDING.

I believe that all the authorities on infant feeding will agree that certified milk is the best artificial food for healthy babies. If no certified milk can be obtained, then a milk of a low count from cows that have reacted negatively to tuberculin may give satisfactory results. Next boiled milk, as recommended by Brennemann,[8] and then milk pasteurized by the "holding method," according to the standards of the Commission on Milk Standards[9] is the order in which I would place these "satisfactory milks," from my results in 267 feeding cases during the last year.

RECOMMENDATIONS.

The medical society in each city in which there is no certified milk should appoint a committee whose duty it should be to interest the dairymen in the production of better milk. The ideas of cleanliness could be instilled into the milk producers at the meetings of their organizations (if not organized, organize them) and by means of literature sent to their homes. The committee could show them that not only the death rate of infants of the city would be decreased, but their own profits could be increased through the production of cleaner milk.

The mothers' clubs could be interested and through them a demand for cleaner milk could be stimulated.

Through the infant welfare stations is another method by which the mothers could be reached.

The city should appoint a milk inspector (only one who is duly qualified), whose duty it should be to examine samples of dairy and pasteurized milk as it is being delivered, at least once a week. The examination should include the number of bacteria per cubic centimeter, the acidity, and pathogenic bacteria, if any. He should also see that the wagons are clean, and the milk well iced; also that the creameries are clean and that they receive only good milk. He should have the authority of revoking the license of any one whose milk does not reach a certain count (say 100,000) after a certain time. From this start the requirements could be gradually extended until first-class milk is being produced. All dairies and creameries should be inspected at least once a month.

All the above will be of little avail if the milk is allowed to stand on the porch in the hot sun for an hour or so. In many places special boxes with ice are furnished for the milk, or the milkman has access to the ice box and puts the milk in it.

A neat bulletin covering the essential conditions that should be present in the production of good milk was issued by the Health Department of Rockford, Ill.[10] It seems to me this makes quite an impression upon the public as a whole and is worthy of imitation by other cities.

In conclusion, I believe that if the members of the medical profession were properly interested in this subject, the milk supply of every city could be easily bettered and gastro-intestinal disturbances could be materially reduced.

My thanks are due to my colleague, Dr. W. T. DeSautelle, for many valuable suggestions; to my laboratory assistant, Mr. F. S. LeTellier, for his conscientious and untiring work, and to Mr. B. R. Firestone, manager Racy Cream Company; Mr. F. B. Stuart, manager Mono Service Cream Company, and Mr. R. W. Wade, manager Knoxville Pure Milk Company, for their hearty co-operation and assistance in collecting the samples of milk examined.

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SPASM OF THE PYLORUS WITH REPORT OF A CASE FOLLOWED THROUGH FOUR YEARS.

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The following case is reported because it presents very closely every evidence of pyloric stenosis, and because I have been able to follow it for four years and note the progress of the patient; furthermore, in closely studying the literature for the past five years, I have noted a great many more cases of stenosis reported than pylorospasm and I have wondered if some of these cases were not in reality pylorospasm with inflammation of the pylorus and not hypertrophy.

Case Report.—D. W. G. was born May 10, 1910. At birth he weighed 6 pounds and 12 ounces, normal birth, breast fed. At four weeks his weight was 8 pounds and 4 ounces. A few days later he began to have indigestion, manifested by slight eruptions on the face and gagging. At five weeks and five days, weight 9 pounds, he began vomiting milk and mucus. He was given castor oil. The vomiting continued irregularly day and night for one week. Everything taken into the stomach, water included, was vomited, though not immediately after taking. The breast was given, first, ten minutes every two and one-half hours; the vomiting continued; the breast was then given five minutes every two hours; later it was given three minutes every two hours. Though the vomiting was not so frequent, it occurred after every second or fourth nursing and was projectile in character. The bowels did not move naturally; the urine was scant and discolored at times. He slept a great deal of the time. The vomiting continued and at times was projectile. He was given saline and soap enemas, suppositories and castoria to move the bowels. His digestion seemed good; the bowel movement seemed small and well digested.

Physical Examination: Fairly well nourished child. Skin clear except the face, the cheeks being covered with small pimples. Heart and lungs normal. Abdomen level with chest; soft, no masses could be felt. Occasional peristaltic wave could be seen running over stomach from left to right. This was more marked after nursing for ten minutes. This nursing was vomited, apparently more being vomited than was originally swallowed. July 1, 1910, he had lost to seven pounds and seven ounces; July 18 he had lost to seven pounds. The stomach was washed with a weak solution bicarb. soda and soda citrate was given internally. He was tried on various foods with the same result, vomiting usually ten, twenty or thirty minutes after feeding. High saline enemas were given once daily and he was nursed three to five minutes every two hours. During the week of October 18 to 25 he gained to seven pounds and seven ounces. The vomiting still continued. He was tried on the breast every two and one-half hours, three minutes' nursing. The vomiting was less frequent, and on August 15, 1910, he weighed seven pounds and thirteen ounces. From August 15 to September 12 he was nursed ten minutes every three hours, being given albumin and peptonoids at intervals. He still vomited occasionally, but gained steadily in weight so that on September 12 he weighed nine pounds and ten ounces. At this time he developed a temperature of 100 to 101 in the afternoons and was given small doses of coco-quinine. The stomach washings and irrigations were discontinued, although it was necessary to use drugs and enemas to obtain a movement. His gain was steady, though slow. On September 25 modified cow's milk having been tried with increase of vomit, he was put on two bottles of condensed milk besides the breast milk. On October 23, weight ten pounds and nine ounces, vomiting had ceased, but he continued to be very constipated. As the weather grew cooler he changed from condensed to modified cow's milk, beginning with 1.25 per cent fat, 7 per cent sugar, and 75 per cent proteids. Later the formula was increased, oatmeal and other cereals were given, and in addition orange juice; then chicken, beef and mutton broth, toast, crackers and beaten biscuits. He gained steadily, though irregularly, through 1911, although he had occasional vomiting spells. At twenty months of age he had eleven teeth, was very bright and was on the following diet: one quart of sterilized milk per day, orange or prune juice, oatmeal, rice, grits (well cooked), eggs, broth or beef juice, toast, chicken, beaten biscuits with an occasional scraped apple. He was large and strong and was mentally bright, though still constipated and required a purgative or enema daily. When last seen he was four years of age

and physical examination revealed no abnormalities.

ETIOLOGY.

The various theories of causation have been well stated by H. J. Nicoll, and quoted by E. W. Mitchell[1] as follows:

1. That the condition is the result of primary congenital developmental aberration, possibly connected with the junction at the pylorus of two processes of development.

2. That it is the result of congenital hypertrophy of the muscular walls of the pylorus secondary to antagonistic and inco-ordinated action of the stomach on the one hand, and the walls of the pylorus on the other, this inco-ordination being dependent upon functional disorders of the gastric nervous system resulting in spasm.

3. It is the result of spasmodic contraction arising from gastric (dyspeptic) irritation after birth and therefore not congenital.

4. That the condition is the result of chronic inflammatory processes.

Dr. Koplic[2] recognizes (1) A purely congenital spasm primary or secondary, without probable or demonstrable anatomic obstruction. (2) Pyloric spasm in which there is a probable demonstrable anatomic obstruction. (3) Congenital pyloric stenosis with demonstrable lesion, in which the element of spasm is without material importance to the progress and treatment of the case. A given case may at different periods fall under any of these classes, notably so with the first two.

Heuber,[3] basing his claims on observations of twenty-one infants seen in private practice, says that pylorospasm occurs in 0.5 per cent of all children's diseases. He wishes to distinctly distinguish pylorospasm from pyloric stenosis and claims that hypertrophy at the pylorus is a secondary phenomenon resulting from the continued contractions. Gastrospasm he prefers as a better term, and regards it as due to defects in inervation of the unstriped muscles.

Moran[4] concludes as follows: (1) Pyloric stenosis in infancy is due to the following conditions, either of which may exist alone, but are frequently associated: (a) Hyperplasia of the tissues of the pylorus, particularly of the muscular coat; (b) simple spasm of the pylorus. (2) The evidence would seem to indicate that the hyperplasia is congenital and that the pyloric spasm originates after birth. (3) Cases in which the symptom-complex does not develop until some time after birth are probably instances of partial stenosis with secondary spasm or pyloric spasm alone. (4) The pyloric spasm may be due to a neurosis, erosion of the mucous membrane of the stomach or pylorus, or acute or subacute gastritis.

Dr. Holt[5] in a recent article says that temporary spasm of the pylorus undoubtedly occurs in many conditions, as in projectile vomiting of cerebral disease, but definite persistent spasm of the pylorus without hypertrophy is yet to be proved. In the case reported above I believe the condition pylorospasm was due to an irritation, probably hyperacidity, and not a congenital stenosis.

SYMPTOMS.

It is not the purpose of this report to discuss symptoms in detail, as they seem fairly well understood and have been fully reported numerous times. Pyloric spasm generally occurs from the third to the sixth week; seems more frequent in boys than in girls; vomiting is the first symptom and is usually violent and projectile in character. It may occur after each feeding or may skip one or even two. Under these circumstances, more is vomited than is ingested and containing a large amount of mucus. There is a hyperchlorhydria. The bowels are extremely constipated. Peristaltic wave is noticed from left to right. In 50 per cent of the cases a tumor may be felt.[6]

DIAGNOSIS.

Early and exact diagnosis is very essential for intelligent treatment of the condition and as to whether medical or surgical methods are to be used. Pylorospasm must be differentiated from chronic indigestion, habitual

vomiting, pyloric stenosis and tumor of the pylorus.

Chronic Gastric Indigestion.—Seldom occurs in the breast fed. Vomiting, the most persistent symptom, occurs without definite relation to feeding and the vomiting is never explosive. The stools usually show evidence of intestinal indigestion; no peristaltic wave.

Habitual Vomiting.—Usually in the breast fed. The child vomits habitually, yet gains and seems normal in every other way. The vomiting is never explosive and peristaltic wave is absent. There is no evidence of indigestion.

Morse[7] says that while there is no question that spasm of the pylorus and hypertrophic stenosis are two different conditions, the diagnosis is at times extremely difficult, the onset of the symptoms being the same in both, there even being present at times a palpable tumor in spasm. The constipation in spasm is never so marked or persistent; the tumor is generally absent and if present presents variations in the size of tumor and is small or cord-like, not large and hard as in stenosis or tumor. The abdomen should be examined with the stomach both full and empty and if necessary under an anesthetic; then if no tumor is felt the diagnosis of spasm is justified.

TREATMENT.

Heuber[8] gives the best treatment as rest and food at longer intervals and in larger quantities. He does not recommend gastric lavage.

Furhman[9] advocates lavage of the stomach in all pronounced cases, especially with signs of gastritis, also rinsing the stomach with alkaline mixtures and regulation of the diet. He believes medicinal treatment entirely useless.

Rosenstern, J.,[10] recommends rectal injections of salt enemas, 30 to 40 drops per minute, twice daily, two hours each time.

Hutchison[11] advocates washing out of the stomach every day, or twice a day if need be, preferably with a weak solution of sodium bicarbonate z t to twenty ounces. As to feeding, breast milk is best; next to this is peptonized milk diluted with an equal quantity of water, the intervals of feeding to be regulated by finding out what the child can stand without being sick. He does not consider drugs of any use.

Bloch[12] advises, when breast milk is not to be obtained, the use of buttermilk, as it does not ferment in the stomach, even when long retained, and does not seem to irritate like cow's milk.

To sum up, the best treatment of pylorospasm seems to be: (1) rest, (2) diet, (3) rectal irrigations, (4) lavage. Drugs do not seem to be of any assistance.

The diet should preferably be breast milk; if this does not seem to agree, remove a portion of the fat and add lime water. The next best food is a modification of cow's milk to which an alkali should be added to neutralize any possible hyperacidity; then buttermilk may be tried. Rest of the stomach by prolonging the nursing period and finding out the amount that is best retained. Rectal irrigations and salt solutions seem to be very favorably recommended. As to lavage, with either plain water or weak solution of bicarbonate of soda, there still seems to be a difference of opinion. I believe daily lavage with bicarbonate of soda to have been of benefit in the case reported above.

Surgical intervention for the relief of pyloric spasm is seldom necessary or advisable.[13]

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SOME BRIEF NOTES ON INTESTINAL INDIGESTION.*

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A diagnosis of intestinal indigestion in itself, without any further explanation, is practically worthless. It may mean anything from a new growth in the aesophagus or gastric ulcer to a proctitis. The term is a bad one—exceeding in viciousness that of intestinal toxemia. The two terms are frequently used synonymously. Naturally, then, in taking up this subject for discussion, we must select one particular group of cases and work with that in mind.

These few remarks will be concerning conditions in the upper intestinal tract between the pylorus and jejunum. In this area, that is, the duodenum, there is performed practically three-fourths of digestion. I shall make no attempt to review the literature, nor can I present anything really new. My idea shall be to call attention to a condition which, if neglected, is sure to bring serious trouble, and to try to emphasize, then, the importance of diagnosis and energetic treatment.

In this duodenal area the greater part of digestion is performed and the food is prepared for the lower intestinal tract and its consequent absorption. The stomach pours its contents here. The juices from the pancreas are poured into this area; bile is given to the intestinal tract in this area. All of these organs, then—the stomach, pancreas, gall bladder and liver—bear a close anatomical relationship and physiological interdependence. The hydrochloric acid of the stomach, for instance, is required to convert the pro-secretin of the duodenal mucous membrane into secretin which in turn is absorbed by the blood, carried to the pancreas—there to stimulate the juices. The lymphatic system of the duodenum and gall bladder and pancreas are closely related; those of the gall bladder draining through the head of the pancreas.[1] The common bile duct is frequently imbedded in the head of the pancreas before it empties into the duodenum.[2] It is readily seen, then, how closely associated physiologically these organs must be, and of what importance this upper intestinal tract is in the digestion of every class of food which we eat. One object, then, in this communication will be to discuss a condition which we will call duodenitis or duodenal indigestion, varying, I believe, from a mild inflammation and thickening to an acutely inflamed condition just short of an ulcer. There is, of course, no opportunity to study the pathology in the mild cases except at operation, and it is probable that there is no definite tissue changes in all cases, but we may picture this area as one in which these important digestive changes should take place, and, failing, we have one form of intestinal indigestion—and a large class it is.

CAUSES.

Causes cannot be gone into here. There are a number of conditions which will give to the duodenum food improperly prepared.

Granted that we have damage begun in the duodenum, from this may develop in several ways inflammation of the bile ducts, of the gall bladder and of the pancreas. Opinion is rather inclined to the belief that chronic pancreatitis results from lymphatic drain from the duodenum, gall bladder, or bile ducts and not from a direct extension or damming back through the pancreatic duct, for if the latter were true, Deaver argues, the whole gland

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*Read before Alabama State Medical Association, Montgomery, Ala., April, 1914.

should share in the infection, which it does not, but it is rather confined to the head of the pancreas.

Our trouble may begin in the pancreas resulting from chronic appendicitis. Deaver again calls attention to the fact that the lymphatics from the region of the appendix probably run through the head of the pancreas and we must frequently look to the appendix to find the primary cause of some pancreatic lesions.

For the sake of brevity, pathology will be considered from one side mainly. Let us quote here from Vaughan:[3] "When the proteins are taken into the alimentary canal and are acted on by the digestive juices, the product becomes poisonous at about the peptone stage, and if the peptones formed in the alimentary digestion should be absorbed into the circulation it would be highly injurious, but the digestive process proceeds and the peptone is broken up in the harmless amino acids which are absorbed and synthesized into the proteins of our bodies. When proteins find their way into the blood without being brought under the action of the digestive juices of the intestinal canal, they must be digested in the blood or tissues and in this process the protein poison is set free and, since general distribution cannot be hindered, it exerts its deleterious effects on the body. We now know that the symptoms of many of the infectious diseases are due to the parenteral digestion of proteins." (Journal A. M. A., November, 1913.) In this same article, Vaughan tells us that the protein poison is the same whether alive or dead, animal or vegetable.

From the above, then, we see that this duodenal indigestion spoken of may be responsible for a pronounced systemic condition such as general arteriosclerosis or endarteritis of the brain—terminating in apoplexy, or, of the kidney, terminating in nephritis. This brings us, then, to the symptoms. These are varied and usually of a chronic nature. Very frequently they are mild and indefiinite and for this reason probably more than any other numbers of cases are passed up from lack of complete investigation, and thus an apparently simple condition runs on, and may lead to a serious consequence. This is due to the fact that the patient is not very sick and does not consult a physician early. When he does, it is because he or she feels "run down generally." There is a general lack of energy, a feeling of dullness, particularly after a meal. When questioned as to a particular complaint, the most frequent and definite one is "fullness and gas on the stomach several hours after eating." This may amount to a dull pain and, at times, strongly suggest duodenal ulcer. This differentation will have to be made frequently. Another point is the irregularity of this dull pain. These, coupled with excessive gas formation, are always strongly suggestive of biliary indigestion. Among other things are headache, vertigo, variable appetite and constipation. This side is better demonstrated by case histories, of which I shall give several later. The actual physical examination will show very little. There is a slight yellow tint on the sclera, coated tongue, tenderness over gall bladder and over pancreatic areas. In certain cases appendiceal tenderness. Stomach analysis does not shed much light—probably show slow acid most often. Duodenal contents will show lessened activity of the pancreatic function; stools show evidence of fermentation; fat droplets and muscle fibre at various stages of digestion are very numerous. Mucus is also present. Here it is well to mention the fact that in so many cases chronic colitis co-exists with this duodenitis; in fact, may be the thing that brings the patient to the doctor, on account of mucus, diarrhoea attacks, and, at times, involuntary stools. In such cases always examine stools carefully for amoebae histolytica. In general examination X-ray plays an important part. No details can be gone into.

Considering the differential diagnosis, the main thing to rule out is duodenal ulcer. There is lacking, however, that definite history of pain so regular in appearance. Absence of this all important Moynihan history, absence of occult blood in duodenal contents on repeated exam-

ination will, as a rule, make the differentiation. As to gastric ulcer, there is no definite clinical history.[4] Here again absence of blood is an important fact. Radiographs aid in the diagnosis. Differentiation as to cholecystitis is only one of degree, and on that depends in a large measure the treatment. Cholelithiasis is usually differentiated by lack of colic, though this, of course, is not positive as a gall bladder full of stones may be found at operation for chronic cholecystitis, when there has been elicited no history of colic.

SEQUELLAE.

The conditions mentioned in differential diagnosis must all be carefully considered. Chronic inflammation is there and we may simply conjecture what the probable and possible end results may be in the gall bladder, pancreas, etc. The important condition to which I wish especially to call your attention is a general systemic affection and may truly merit the name of intestinal toxemia—that is, protein intoxication. Consider again the quotation cited above from Vaughan—that the proteins become poisons at the peptone state. Here the pancreatic and biliary juices must take charge of the material. If they fail in this duty, there must be chronic absorption of the protein poison. This feature I believe to be a most important and frequent one in the production of high blood pressure and general arterio sclerosis. The protein poison is there. If we acknowledge, then, the truth of this statement, no further words are necessary to impress upon every one of us the fact that such a condition demands prompt treatment.

TREATMENT.

Coming to the matter of treatment, no hard and fast rules can be laid down. Careful histories and complete examinations will lead us to suspect the diagnosis. History of any form of indigestion, however slight it may be, such as gas, fullness, etc., should be thoroughly investigated. It is not always so much the severity of the symptoms, but rather the continuous nature, that means marked disturbances of the bodily functions. After this careful history and general physical examination, additional evidence may be gotten from examination of the stomach and duodenal contents, X-ray, and, always, from the stools. Examination of the feces alone in a certain number of cases will give an insight into the condition which certainly can be gotten in no other way. A symptom complex which I have in mind is essentially a medical condition. Certain circumstances will arise which will demand surgery, most frequently gall bladder drainage. The gall bladder may be inflamed and the appendix may be the seat of chronic inflammation, but the man who expects success by mere surgical procedure, without the proper after treatment, extending over a period of months, will most always fail in his ultimate results. As suggested above, there will be cases where the combined surgical and medical treatment will appear to be the ideal. The question of just what procedure is best, though, in these gall bladder cases is an indefinite one. Much has been written upon it. Lately an article by Mayo appared in the American Journal of Medical Science on "Cholecystitis Without Jaundice or Stone in Its Relation to Chronic Pancreatitis." In this paper Dr. Mayo reminds us that frequently simple gall bladder drainage gives only temporary relief, and the best procedure is removal of the gall bladder.

The diet question is an important one and will vary with the individual case, depending on how well we find the patient is handling his various classes of food. The protein must always be restricted. Bile salts plus pancreatin in enteric capsules have to me been very useful. Another medicine used frequently is liquid petrolatum. This has been serviceable in constipation. May be given by mouth twice a day, or per rectum once or twice a week. The proper amount of rest, especially after each meal, plus regular exercise in the fresh air, with high frequency electrical treatment several times a week, are all valuable adjuncts. A very important measure in treatment which

I wish to emphasize is a procedure instituted, I believe, by Dr. Jutte, of New York—namely, transduodenal lavage. Treatment given best in early morning. Have patient come to office without breakfast. Swallow duodenal tube; when this reaches duodenum, connect tube with funnel or irrigator and run 500 to 1,000 c.c. warm saline, containing 7 1-2 grains powdered castile soap. This takes ten to twenty minutes. After removing tube, have patient lie still on right side for five minutes longer. May then leave the office and have no discomfort. This procedure does to the upper intestines what colonic flushing does to the lower. Relieves constipation promptly, sometimes relief lasting several weeks.

Case 1.—Age 34; first seen November, 1912: onset two years before; pain four hours after eating. Lots of gas, no nausea, no vomiting; attacks at intervals first—at this time practically constant; stomach contents contained excess of mucus; total acidity 70, free hcl. 40, no blood; string test negative for blood; stools repeatedly negative for blood. Diagnosis: Duodenal ulcer questionable; hyper-acid gastritis, chronic cholecystitis. Calcined magnesia and belladonna after meals, with proper precautions in diet, gave relief, but at intervals the old attacks were renewed. Patient would not consider complete rest in bed for treatment for duodenal ulcer. December, 1913, began duodenal lavage. Duodenal contents, tested each time for blood, were negative. Relief for one day after first one; three days after the second one, given one week apart. Six more, one week apart, brought good results—patient feeling very well and thinks this has given her more relief than anything else. No other medicine in the meantime.

Case 2.—Female, age 36, consulted me December 10, 1913, on acount of excessive gas on stomach, attacks of dizziness at times, never feeling well; had had five operations, at one of which the appendix was removed. Onset of trouble about four years ago; negative except for this gas, lack of energy and general weak feeling. Examination showed the sclera slightly tinted; the second sound of heart little loud; blood pressure 200; arteries palpable; tenderness on gall bladder palpation; gastric contents showed low acid; no blood; stools negative for blood; fat globules and muscle fibres very numerous; urine repeatedly negative for albumin and casts; phenolsulfonephthalein test showed 30 per cent excretion in first hour; gravity 1006. Here was a case in which my diagnosis was cholecysto-pancreatis with consequent protein absorption and toxemia. I believed this to be responsible for the high blood pressure and general ill-feeling. Hcl. and pepsin, plus dietary precautions, gave some relief. On the 19th of December she was given her first duodenal lavage, about 800 cc; January 22 came back for next one, marked improvement; feeling better than she ever remembers. On the 29th another treatment; feeling wonderfully better. Blood pressure 155; stools show fatty acid needles and a few fat droplets. After about six such treatments patient was given high frequency and auto-condensation several weeks. At present the only medicine she is taking is a teaspoonful of Carlsbad salts about once a week. Eats freely except proteins. Blood pressure varies between 140 and 150, urine still negative. We must guard against endarteritis and consequent renal degeneration, a tendency we might say induced by her duodenal indigestion.

Case 3.—Male, age 32, complained of gas, fullness on stomach, with soreness in the upper part of stomach at times; typhoid fever nine years ago; onset of present trouble eight years ago; has a burning, usually relieved by eating; no nausea, no vomiting; soreness and gas practically constant; examination showed marked yellowness of sclera, tenderness on gall bladder and appendiceal palpation; stool contained excessive fat fibre and fat globules. Diagnosis: Cholecysto-pancreatis and appendicitis. An operation would not be considered. Administration of bile salts and pancreatic ferment, plus Carlsbad salts, together with proper diet, gave good results. Patient was not seen again until about a year later and he had gone back to the original condition. Soon after this duodenal lavage began, given once every five days. During this time he was also taking olive oil, which relieved his high acid very promptly; his jaundice disappeared, fullness and soreness relieved, bowels regular. After missing a couple of treatments, jaundice returned. This is a case where surgery, that is, gall bladder drainage or removal and appendectomy is indicated. The patient refuses and must be kept as comfortable as possible in the meantime.

To illustrate combined medical and surgical treatment:

Patient for ten years had suffered with diarrhoea and practically involuntary stools. Once or twice a month severe colic. Appendix had been removed. Examination showed marked ten-

derness over colon—at one time thought gall bladder was felt. Stools not formed, mucus in large strips. Microscope showed enormous amount of muscle fibre. Diagnosis: Colitis plus and dependent on upper intestinal indigestion and pancreatitis. Colonic irrigation daily gave prompt relief from involuntary stools and colic. One year later referred to surgeon for gall bladder drainage. This showed small thickened gall bladder, no stones. Omental adhesions along old appendix scar. Head of pancreas little hard. Condition now very much improved. Undoubtedly certain permanent damage has been done to the pancreas, which can never be repaired.

902 Alabama Avenue.

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1. Deaver.
2. Deaver.
3. Vaughan.
4. Paterson.

A CASE OF INTUSSUSCEPTION—OPERATION—RECOVERY.

By F. W. Wilkerson, M.D.,
Montgomery, Ala.

At 2:30 p. m., March 11, I was called to see a girl baby two days less than one year old suffering, her mother said, from colic. She was a breast-fed baby, born of healthy parents, and herself previously healthy and well.

The history given by the mother was that the child had been bright and playful until thirty minutes before, when she was suddenly seized with what they thought was colic. She doubled up and screamed as if in acute pain. Her bowels had not moved that morning as they usually did, so the mother immediately gave her an enema which produced a good bowel movement. In spite of the enema the pains continued, coming on at short intervals and lasting, perhaps, a minute at a time. On my arrival I found the child looking somewhat pale, but seeming perfectly comfortable. Physical examination revealed nothing abnormal; the abdomen was scaphoid, not tender and no masses were palpable. During my visit there were several attacks of the pain and evidences of nausea, though the baby had not vomited at all. I ordered castor oil and hot applications to the abdomen, telling the parents that I thought the castor oil would produce relief as soon as it caused free catharsis.

Four and a half hours later they told me over the telephone that the oil had not acted, the pains were still very severe and the baby had vomited twice. I gave instructions for another enema at once to be followed by a few drops of paregoric. Shortly they called me again and said the enema had returned streaked with blood.

I then went out and found the baby looking considerably paler than at the time of my first visit, and seeming to be more prostrated than she should have been from a simple case of intestinal irritation. The pains were still present, though not so frequent nor so severe, probably because of the paregoric; pulse was good, but rapid; rectal temperature, 99 2-5 degrees. Abdomen was still scaphoid, but midway between the umbilicus and ensiform cartilage was a mass that was easily made out on deep palpation. This was smooth, firm in consistency, slightly movable, and had the sausage shape that is so characteristic of many cases of intussusception. It seemed to lie in the position normally occupied by the transverse colon, was about three inches long and the middle of it seemed to lie just below the midline of the abdomen. The mass was not tender. With every attack of pain it became firmer and seemed to stiffen only to relax as the pain died down. The mother had saved the stool from the enema and I found it to be distinctly streaked with blood. The prostration, the constipation, the recurring colicky pains, the blood-streaked enema and the presence of the palpable tumor made me regard the case as one of intussusception.

At this juncture Dr. J. H. Blue was called into consultation and he concurred in the diagnosis. The parents consented to operation, and at 9:30 p. m., seven and a half hours after the initial symptoms, the baby was on the operation table. The operation was performed by Dr. Blue, and on opening the abdomen our diagnosis was found to be correct. The intussusception was of the ileo-colic variety, the intussusceptum reaching all the way to the splenic flexure of the colon, at least ten inches of the ileum being invaginated into the colon. Reduction was accomplished very easily and the intestine was undamaged except for slight oedema at the ileo-cecal valve. No abnormalities of the intestines or mesentery were noticed. The abdominal wound was closed in layers and the child left the table in good condition. Bowels were moved the second day after operation with castor oil and after that moved unaided. Recovery was uneventful and the patient left the hospital on the ninth day.

The chief lesson to be derived from this case is the importance of examining the ab-

domen in every case of abdominal pains in infants, for without the discovery of the mass in this case the true nature of the case would probably not have been discovered until too late for operation to have been of any avail.

CEREBELLAR DYSERGIA FROM MALARIAL THROMBOSIS, WITH REMARKS ON THE CLINICAL FORMS AND PATHOLOGY OF PERNICIOUS MALARIA AFFECTING THE NERVOUS SYSTEM.

By Tom A. Williams, M.B., C.M., Edin., Corresp. Memb. Socs. of Neurol. and Psychol. of Paris, etc. President Wash. Soc. of Nervous and Mental Diseases. Neurologist to Epiphany Dispensary.
Washington, D. C.

A journalist, aged thirty-eight, was referred in 1909 by Dr. Roy for diagnosis of an ataxia which he had had for years and which had latterly caused him to fall down in the street and much interfered with correct typewriting.

Married with four children, he had had no significant diseases except gonorrhea at twenty-five and the usual children's zymoses. But in Cuba during the war he had pernicious malaria. On his return the following year, his hands and feet felt numb and the dysmetria which he now suffers began. Recently his speech has become slow, but neither slurring nor thick. A slight diplopia and strabismus is said to have resulted from a blow when a boy. A medical friend tells me he could not see so well to his left. Now he complains of seeing less well to his right. He says that the sight gradually dimmed and was lost entirely some weeks ago. Since then it has improved. Actually he sees quite well. For long he has felt a dead weight in his back and a soreness in the spine. It varies and is worse when he is constipated, when he is clumsier and more depressed too. He is miserable and finds his temper almost uncontrollable. He is so tired at night as to almost desire suicide, and feels desirous of stopping work and sleeping. No malarial parasites were found a month before I saw him.

Examination.—Viscera not found abnormal. Reflexes. Patella and Achilles ++. Radial R > L. Triceps feeble. Maxilla +. Abdominal absent. Cremaster R > L, and controllable L only momentary. Plantar feeble flexion with tendency to extend sometimes, especially on left. Pupils react briskly but only slightly to light. Better to accommodation. Micturition normal. Potency good.

Motility.—Speech slow, drawling, monotonous. Facial and tongue movements not impaired. No nystagmus. Grip, pull and push strong. No lateropulsion. No rigidity of neck or limbs or hypotonia. No fine tremor. Can rotate with vertigo. But in walking his movements are slightly swaying with somewhat wide base, though without hesitancy or marked intention tremor.

Ataxia not evident except slightly heel to knee L. > R, and in approximating his forefingers after spreading the arms apart.

The test is as well performed when the eyes are closed.

Diadocokinesis impaired, especially left hand.

Chair mounting and leaning back tests are negative, but the line test* is strongly positive. Noguchi-Wassermann test was negative. There was no lymphocytosis of C. S. fluid.

Sensibility.—The only objective abnormality was a diminutive to diapason perception over external malleolus, but subjective sensations of numbness in fingers and toes were frequently present. Special senses normal. Optic disc normal.

Psyche.—He seems exalted and jovial; but is accurate and rapid in performing various tests of perception and intelligence.

Diagnosis.—The dysergic intention tremor, slow speech and exaggerated reflexes with the paraesthesiae make one think of multiple sclerosis, especially with the history of blindness recovering so rapidly. But against this are the very slight progressiveness of the symptoms and the absence of nystagmus and plantar extension. So I believe, in view of the history, that the syndrome is best accounted for on the ground of the multiple thrombosis of intracranial vessels which occurs in pernicious malaria, as it is called, and that the necroses resulting from these have left the impaired efficiency now shown by the patient's cerebellar aberrations.

The fact that there is as much difficulty in standing while the eyes are open as when they are closed shows that the disability is not due

*See its description in Osler's Quarterly Journal of Medicine, 1909.

to the loss of information as to the position of the lower limbs; the sense of attitude, too, otherwise tested, was intact. The swaying is due to a failure to measure properly, as a normal person does automatically, the amount of muscle tension needed to perform the act of standing. Similarly in walking or typewriting he staggers and misses the keys because the efferent impulses are imperfectly measured because of defect in the central apparatus.

In tabes dorsalis, on the other hand, the coordination is poor because the information as to the position of the limbs is not correctly conveyed to the cerebrum and cerebellum, which regulate the impulses needed for equilibrum and locomotion. But in that case the ocular impression can correct the difficulty to some extent, as shown by Romberg's sign, and besides the sensibility is defective in one modality or another and the reflexes also are diminished. Besides, there is a lymphocytosis of the cerebro-spinal fluid.

The absence of these signs excludes tabes dorsalis therefore. The positive sign of dysmetria, too clearly shows the lesion to be one of the efferent cerebellar functions.

Its permanence indicates that a portion of the cerebellar apparatus is destroyed, not merely incapacitated temporarily. This consequence is said to be unusual, as it is a general opinion that pernicious cerebral malaria causes death either at the first attack or in a relapse, or that if recovery occurs under proper treatment it is complete.

The Neuropathology of Pernicious Malaria. The supposition that the nervous symptoms are produced by a toxine of the parasite is too sweeping in view of the cases in which parasytic thrombi of vast extent have been found post mortem. See the works of Celli, Marxchiafava, Laveran. The latter even believes that the alleged polyneuritis of malaria is often really a myelitic hemorrhage softening Cerletti has given an excellent description of these lesions. In spite of the crowding of the vessels of the central nervous system by parasites none may be found in the peripheral circulation of these cases. But the infiltration of the optic papilla enables the process to be seen during life.

Clinical Forms of Malaria of the Nervous System.—These, of course, depend upon the locality of the central nervous system in which occurs the greatest invasion of parasites. Any topographical syndrome may be represented, monoplegia, hemiplegia, paraplegia occur. When paralysis affects the medulla oblongata, a fatal issue is usual. When the bulb and nuclei are spared and the cerebello-fugal tracts mainly affected the picture is that of the case I have described. Those less versed in neurological terminology have classed such a case as chorea. When the cerebrum is mainly affected mental alienation may be permanent. The massive invasion of the nervous system produces the coma so typical of pernicious malaria.

Treatment.—The energetic administration of quinine, preferably by injection, is recognized as the proper treatment of pernicious malaria. Furthermore, the administration should continue several months after the disappearance of symptoms.

MALARIAL PERNICIOUS FEVER.

By L. Sexton, M.D., B.S.,
New Orleans, La.

Malarial hematuric fever improperly treated has a mortality of thirty per cent. The average layman knows that three days of twenty grains of quinine breaks up the ordinary tertian type, so it is the more serious forms of malaria that challenge the doctor's best efforts. In the hematuric variety the plasmodium malaria seems to remain in the more central organs, or at least they are not usually found in the peripheral blood during the paroxysm though they may be demonstrated in the blood during the intermission. Some special form of protozoon not yet discovered or susceptible to staining may be the cause of this type of

fever, or the hemorrhage may result from the broken-down condition of the blood and renal epithelium. To dilute the toxins and promote elimination is the great end to be accomplished. The hemorrhage comes from the capillaries of the glomeruli and uriniferous tubules of the kidney; the coagulated blood in the tubules soon stops the secretory function of the kidney, unless it is kept liquified and moving. For this purpose it becomes necessary for the patient to take all the mildly diuretic water they can; if rejected it will be retained better often if taken as hot as can be borne. When rejected by mouth it must be gotten into the system either by the rectum, Murphy drip, or enemas forcibly retained by pressure upon the anus, or by hypodermoclysis in which large amounts of just sterile water are slowly injected under the skin into the loose areola tissue.

Koch claims that quinine produces this symptom of hematuria, but it occurs in numerous cases that have not taken quinine, so quinine cannot be the only cause. If it is dependent upon the toxines caused by the malarial plasmodium of the asexual type, the indication would certainly be to cinchonize the patient, for quinine is the only specific known for the plasmodium of the asexual type. The cases we have cured were given quinine (strong solution rubbed into the skin), also doses by rectum; by the mouth is the best way to give the quinine if not vomited. Spirits of turpentine on sugar (15-drop doses), or in emulsion or capsule has been strongly recommended by physicians practicing in the Mississippi Delta to cure or prevent hematuria.

It must be remembered the hematuria may have many causes, as hemophilia, toxic drugs (phenol, etc.), enteric fever, syphilis. Many of the deaths reported after the administration of quinine may have been from some of these causes and not from the plasmodium malariae. Quinine, therefore, should only be given to such cases as are clinically or microscopically known to be of purely asexual malarial origin. Twenty-grain doses daily will do no great damage to the kidney in two or three days, while it will certainly destroy the sexual types of the malaria if they are found in the blood at the beginning of the attack.

In the algid type of the fever bring about reaction by warming the patient as soon as possible. All draughts of air should be kept from the body while keeping the patient's room filled with fresh air all the time. One hundredth grain doses of atropine with one-fiftieth grain strychnia hypodermically, if the chill stage is prolonged or severe, bring the blood from the internal congested organs to the surface. The body should be wrapped in warm blankets, reinforced by hot bottles until the cold stage has passed away. The temperature is often 104 degrees F., although the patient is complaining of severe chill and feeling cold. The reaction from the chill often results in fever from 104 degrees F. to 106 degrees F., which is best treated with five grains phenacetine, ice to the back and front of head, cold sponging with alcohol and water or cold toweling until the fever is reduced. Vomiting, if persistent, is best controlled by large glassfuls of hot water, which, if not retained, at least wash out the bile, which has regurgitated into the stomach. One-eighth grain cocain gelatin or sugar-coated pill to insure solution on gastric mucosa, also stops nausea, provided the bilious material has been first washed out of the stomach. Crushed ice to the throat and mustard to the stomach is also used to advantage at the same time.

It is useless to give bitter solutions of quinine or other drugs to such cases, and capsules are very often thrown up from these irritable stomachs before they are dissolved. In all such cases, particularly with children, a 25 per cent solution of quinine mur. can be made with water, hot glycerine or lanolin and rubbed into the skin or a dilute quinine solution of 20 grains may be injected into the rectum. If this fails to cinchonize the patient, ten grain doses of bisulphate may be injected deep into the muscular tissue, or fifteen grains

of the muriate intravenously, this only as a last resort, as these injections are usually followed by violent re-action or abscess.

To successfully treat hemoglobinuric fever, cardiac weakness is to be overcome, and the secretion of the urine to be kept up. Citrate caffein and strychnia spurs the flagging heart, while large draughts of fluid tends to flush the kidneys.

Prophylactic treatment: No patient who is subject to this trouble should allow his body to become suddenly chilled. Violent exercise should be tabooed, wet clothing should not be allowed to dry on the patient's body; indigestible meals should not be eaten; the bowels should be made to act freely daily. Sudden changes to cold climates should be avoided, though moving to a non-malarial climate should be encouraged. Patients should not be allowed to become chilled at night on account of insufficient covering when temperature falls. Such subjects should be allowed the least amount of physical exercise compatible with good health. While the body is kept warm with flannel, the patient should remain in an open room all the time. At the beginning of a chill hot foot baths, packs and enemas should be given, while given large amounts of carbonated waters (Celestine vichy) or ordinary water if these are not obtainable. Rest in bed for some time with warm covering before the expected chill. Any mild diuretic mineral water or medicine that does not increase the nausea may be administered. Crushed ice by mouth and to the throat with counter irritants over the stomach occasionally allays the vomiting. Ten to twenty drops of chloroform in acacia and simple elixir half hour apart have relieved the nausea in some cases. Two and a half grains of calomel and soda, followed in six hours by seidlitz or citrate magnesia is a fine preliminary treatment to the expected attack. Strychnia one-thirtieth grain sugar or gelatin-coated pills, or by needle if not retained by stomach, is the best cardiac stimulant. Coffee as a Murphy drip is a dueretic heart stimulant.

If the asexual type of malaria are found in the blood, five grain doses of quinine three times daily for seventy-two hours will surely eliminate them; if the crescent forms alone are found, quinine will do no good, but may do harm if given in large doses.

The consensus of opinion is that quinine given at random in large doses without regard to presence of kind of organisms, does more harm than good. It should also be remembered that many of these mild cases tend to recovery, anyway, and that a much-lauded treatment at times is given credit for what nature really accomplished unaided.

Case 22.—Male, age 28, working at a mill in the Rudock swamps of Louisiana. Taken sick July 24 with a congestive chill, after having had chronic malaria for some time, so we could not determine whether the attack was the first or second chill. His whole nervous system was profoundly shocked, pulse hardly perceptible at the wrist and beating 140 per minute when it could be counted. His skin was cold and clammy as that of a dead man. All of his blood seemed to have receded from the surface to internal organs, as his finger nails were blue and his lips were likewise blue. The conjunctiva of the eyes were bile-tinged, pupils were dilated, his breathing short and labored, oxygen starvation. The urine was almost suppressed and albuminous. The brunt of the infection seemed determined towards the brain. He soon lapsed into a comatose state, which rapidly grew worse till the end came, twenty-four hours after the beginning of the chill. He was given all the cardiac and shock stimulants by hypodermic injection, as he could retain nothing by the mouth. We kept up a continuous saline and coffee drip into the rectum. He was given bisulphate quinine hypodermically and was bathed in a saturated solution of sulphate of quinine. Hot drinks were forced on him as long as he could swallow them, to be immediately vomited. Hot bottles to the body and extremities and friction with dry mustard, head lowered, all doors and windows kept wide open. His death was from the comatose variety of the pernicious malaria type, in which the brain was doubtless filled with estivo-autumnal parasites.

Another case similar to this in a female three months pregnant; aborted either from the malaria or from the bisulphate of quinine given hypodermically, in ten-grain doses three times a day. She was more jaundiced than the previous case,

brain and kidneys less affected, made a slow recovery. Two of the points of the hypodermic injection abscessed, but we felt lucky to end the case without another funeral.

Hematuria cases should be confined to bed and rest, fed on low and digestible food, with all the elimination possible, removing the case to a non-malarial surrounding as soon as it is safe to do so. Ten or fifteen grains of quinine every eight hours two or three days alternated with Warburg's tincture, if it can be retained, is sufficient in the way of quinine treatment which is always indicated if the parasite is not crescent in form. Five grains phenocetin, cold sponging and toweling for hyperpyrexia, caffeine, camphorated oil and strychnia by needle for weak heart are the general methods in use in most malarial sections.

The algid form requires immersion in hot water or wrapping in hot blankets and bottles, and filling the patient with hot drinks, enemas or intravenous infusion, champagne or brandy, iced, may be required as a stimulant only in the algid form.

The treatment in the two cases mentioned above was practically the same as was also the type of infection. Eighty per cent of all deaths from malaria in my experience have been of this type. We have never known a death from an uncomplicated tertian type. The battle for and against quinine in such cases is still raging in the Southern States medical societies. Quinine is the only proven specific we know of for the asexual type of malaria, and I would neglect to use anti-toxine in diphtheria rather than quinine by the skin, rectum or hypodermically, if it should be ejected by mouth or not absorbed by the stomach in such cases.

Remember to dilute well any quinine that has to be given hypodermically. 1-100 and 1-50 solution has produced death. Sterile glass ampules containing the proper dose, ten grains to 100 c.c., will reduce the risk of abscess and necrosis when given this way. A large all-glass syringe, capable of holding 12 to 20 c.c., should be preferred to the small hypodermic which is hardly suited to this kind of work. Quinine should not be used hypodermically or intravenously until all other methods at cinchonization have failed.

THE CLINICAL IMPORTANCE OF ARTERIAL HYPERTENSION; TREATMENT.

By I. Willis Ballard, M.D.,
Opelika, Ala.

Arterial hypertension as a factor in diagnosis and prognosis is even yet not sufficiently appreciated by the average practitioner. The reason therefor is to be found in the fact that the majority of men in general practice have not as yet seen fit to provide themselves with a reliable sphygmomanometer. Even more surprising is the fact that many who have so provided themselves consider the sphygmomanometer as an instrument to be used only when so required by certain life insurance companies or as a matter of display in the presence of certain patients.

The sphygmomanometer to my mind constitutes as important a unit of the diagnostic armamentarium as does the clinical thermometer. An accurate observation of the blood pressure reading is worth far more in arriving at a correct diagnosis than is the usual perfunctory asking of a few questions and the gravely conducted inspection of the tongue. No examination of a patient consulting us with the usual indefinite symptomatic complaints should be considered complete until we have determined the degree of arterial tension. By so doing we will many times be surprised at what this examination will disclose, and we will have markedly simplified the task of determining what really is the cause of the patient's symptoms. Most important, we will not have let get by us a patient in the early stages of a condition that will soon undermine his health and remove him from the field of his present active and probably important duties.

Alteration of the blood pressure are present to a greater or less degree in the great majority of chronic disease conditions. We are confronted with the problem of determining the significance of this alteration. What does it indicate to us regarding the cause of this patient's illness? Is it the sole factor in his symptom complex? Is it secondary to renal, vascular or cardiac pathology? Is it compensatory, and the means by which the patient is being kept alive?

These questions merit most serious consideration because by a proper appreciation of their significance we shall be able to establish clearly in our minds the actual present condition of these patients, and by instituting proper lines of therapeutic endeavor be able to offer them much more in the way of their alleviation and cure.

Arterial hypertension may be primary in that it is the sole etiologic factor in the patient's illness, or it may be secondary in that it is the result of other existing pathology and a contributing factor in the patient's present condition.

Its cause as a primary condition is to be sought in auto-intoxication. We may not always be able to clearly show the relationship, nevertheless it exists, and arterial hypertension, arterio-sclerosis and vascular nephritis are coming to be the most common diseases of the present generation, because much of our present-day living is all that could be desired to cause and develop auto-intoxication.

In these cases the hypertension is an irritative phenomenon, the result of toxins of intestinal origin circulating in the blood. Whether the site of irritation is the blood vessels themselves, the vasa-motor centers or the chromaffin system of glands is not yet clearly known.

Long continued hypertension is the cause of arterio-sclerosis. Its importance as a warning signal in the early stages of this condition cannot be over estimated. Most commonly seen in middle-age men, men yet in their prime and associated or not with the signs of an arterio-sclerosis, it is of paramount importance. These patients come to the physician realizing that something is the matter. They are losing their grasp of things; they do not feel quite fit; they cannot go quite as hard as they formerly could; they are irritable and out of sorts; their work is getting hard. These are the patients for whom very much can be done, and these are the patients who later on will most appreciate the efforts of the physician.

Of more advanced years we have patients with a general arterio-sclerosis, hypertrophied hearts, and frequently the changes of a beginning vascular nephritis. Even in these much may be promised in the relief of symptoms and prolongation of life. The object of treatment should not be to attempt to reduce the hypertension to the point generally accepted as the normal, but rather only to that point which has become normal for these particular patients. Thereby we are able to lessen the tendency to apoplexy, relieve the cardiac strain and conserve the integrity of its musculature.

In senile patients with lowered nutrition, vascular hypertension can only be considered in the light of a good omen, for certainly a lowering blood pressure in this class of patients signifies a dilating heart and failing kidneys.

The relation of hypertension to kidney change is a most interesting one, but our conclusions as to its significance must be based upon an accurate determination of whether we are dealing with a vascular or a tubular nephritis. If it be a vascular nephritis, the kidney lesion is a part of the general sclerotic condition and the hypertension bears to it the same relation as to the vascular changes. It is an irritative phenomenon primarily, and secondarily the result of cardiac hypertrophy. With a tightly contracted vascular system, the heart in order to maintain the circulation must labor against this excessive tension, and such labor but tends to shorten the time of appearance of the inevitable cardiac dilatation.

In the presence of a tubular nephritis we are dealing with a much more grave condition

as regards the significance of the hypertension. Hypertension in the presence of a tubular nephritis is compensatory. This should never be forgotten. Swollen, congested and inflamed kidneys are interposed in the path of the circulation. The areolar tissues are choked with fluid, serum is poured out and oedema develops upon the slightest slowing up of the circulatory activity. The prevention of cerebral and pulmonary oedema is dependent wholly upon the maintenance of the vascular hypertension. It would seem that the vasomotor system gives up the fight sooner in this form of nephritis and the maintenance of the necessary tension is more dependent upon the cardiac side of the circulatory apparatus.

Hypertension, the result of cardiac changes, may be eliminated, because it is always compensatory, and in but one class of cases that I recall it is ever made the object of treatment. Such are athletes long accustomed to athletic endeavor, who through change of circumstances are placed in position of a sedentary nature.

The first essential in the treatment of hypertension is a recognition of its cause and an accurate knowledge of the condition of the heart and kidneys. These factors known, treatment should begin with a most radical change in the habits and diet of the patient. Realize that auto-antitoxication is the etiologic factor of most vital importance. Auto-intoxication in the vast majority of patients is intestinal in origin. Next in importance perhaps is alcohol, then syphilis, gout and lead. The basis of rational treatment in any disease is removal of the cause. It seems difficult for many men to realize this, and certainly in all instances of the failure of the following outline of treatment to give satisfactory results, which I have been able to investigate closely, the physician failed to recognize the importance of this basic factor in treatment. In order to remove the cause it must certainly be recognized. The treatment outlined below is not a treatment for intestinal auto-intoxication, chronic alcoholism, syphilis or gout, but a treatment for vascular hypertension. Eliminate these conditions and we are in a position to expect results.

Reduce the total quantity of food taken for the first few weeks of treatment. This reduction may amount to one-half or even more of the usual quantity. It undoubtedly is of advantage for a short time at least to make the bulk of this reduction in the proteids. By carefully watching the patient's weight it should be reduced to something near the standard average for his height and age, and then the quantity of food, largely non-proteid, so regulated as to maintain this weight.

In the compensatory form of hypertension the employment of digitalis and the caffein derivatives, with a clear knowledge of their action and the purpose for which they are to be administered, constitutes most excellent practice.

In hypertension *not* compensatory the employment of the iodides and, of less importance, the nitrates, unquestionably is of value in many cases.

The most valuable method of treatment of arterial hypertension in my experience is the high frequency, high potential electric currents. I am speaking of arterial hypertension and not of its etiologic factors. Given a static wave current from a machine with an output of sufficient voltage and a coil or transformer capable of delivering 500 to 1,000 milliamperes of current to the patient in circuit by the method of D'Arsonval, we have a treatment for this condition which makes of it one of the most successful and most satisfactory lines of work the physician does.

BLOOD LETTING IN PNEUMONIA.*

By Hugh Boyd, M.D.,
Scottsboro, Ala.

The burden of an attack of pneumonia is borne by the heart, and for the most part by the right heart; and a patient's chances of re-

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covery are in proportion to the manner the heart is bearing the burden. In the great majority of cases of pneumonia, in which the heart needs help, the judicious administration of strychnia, digitalis, strophanthus, or morphine will sustain the patient and carry him over. But there are cases in which these, however judiciously used, will fail, and it is in these cases that venesection will often serve our purpose.

Owing to the increased tension in the pulmonary artery in pneumonia—due to the resistance in the inflamed lung—the second pulmonic sound is always accentuated. As long as this accentuation keeps up there is not much danger to the right heart. But when this accentuation begins to fail, the right heart begins to be distressed, and we have a faster pulse, more or less blueness of nails and even cyonosis—increased restlessness, increase in breathing, even to great dyspnoea. Venesection, first of all, relieves the right heart, removes some of the toxins of the disease, and increases the fighting properties of the blood. It brings back the accentuation of the second pulmonic sound, after it has been lessened or lost by the distressed right ventricle; it always relieves, to a greater or less degree, the cyanosis, slightly stimulates a muffled first sound, relieves the dyspnoea, quiets delirium, and almost always produces a quiet, restful sleep; and in my opinion and experience hastens resolution. If the temperature is down, say 101 or lower, it will bring about a reaction in a short time and the temperature rises.

It is indicated in two classes of patients in the beginning of pneumonia:

1. In stout, robust patients with full bounding pulse, high temperature (105 or 107), dyspnoea, deep red or congested face and great pain, with or without delirium.

2. In those cases that rapidly involve one lung, and there is diffused congestion in the other.

It is indicated later in the disease whenever the heart's action, independent of an extension of the trouble, or the advent of complications, becomes very much accelerated because this is generally due to distress of the right ventricle; also in all cases of relatively acute dilation, especially of the right ventricle, with or without evidences of venous stasis.

The amount to be abstracted must be regulated by the indications and conditions present. Authorities tell us to take 1 to 2cc to each pound of body weight, and that 12 oz. should be the limit. This will sometimes be sufficient but more often will not.

My experience is that when the right heart is beginning to be embarrassed, the temperature begins to go down and the pulse to go up and get weaker. But in some cases the temperature remains high.

Now, gentlemen, please understand me. I do not claim this venesection is an absolute certain and sure remedy for all cases. Neither do I say for you to use it in all cases where the pulse gets faster and weaker. I recently had a case of massive pneumonia of the left lung in an asthenic young man. He did well until the morning of the 7th day, when his temperature began to fall and pulse go up, and his delirium became worse. I didn't bleed him, for he had a beginning pneumonia of the lower and middle lobes of the right lung; and in less than fifteen hours they were solid before and behind, and fifteen hours later he was dead. Nothing could have helped him. There are very few cases of pneumonia in which it is indicated. There are only a very few cases in which it is necessary to use it. But these few cases come in the practice of all of us, and when they come venesection is the best remedy we have.

In order to bring out the indications and results of venesection more clearly, I'm going to read you the history of a few selected cases.

Case 1.—H. S. Stout, robust negro man, age 22, weight about 185 pounds; taken violently ill with chill fifteen hours before I saw him. He has an acute pneumonia of the lower and middle lobes of right lung in beginning of second stage and some congestion in left. Temperature was 106 per rectum, pulse 146, full and bounding. Highly accen-

tuated second pulmonic sound. Respirations were fast 52, and dyspnoea, and he was quite delirious. I took about seventeen ounces of blood from the left median cephalic vein. He went into a peaceful sleep and slept several hours. I gave him free purgation in the beginning and kept bowels and kidneys acting freely throughout the disease. The next day the temperature per mouth was 103, pulse 112. He went through a rather mild pneumonia which resolved on the sixth day.

Case 2.—C. L. White, male, age 24, weight 210, height 6 ft. 2 in., strong and muscular. Was taken sick with measles May 21, 1907. Eruption began to appear May 25. Was quite sick May 26, and developed a severe, diffuse broncho pneumonia on May 28. His pulse from the beginning of the pneumonia was fast, ranging from 130 to 150, and his temperature per rectum was never above 102 1-2. He gradually grew worse and weaker, his pulse getting faster and weaker; his heart sounds at first quite good, gradually became weaker and more muffled; the second pulmonic sound was accentuated from the beginning and grew more so, until June 3, or the seventh day of the disease, when it became less audible. He showed evidence of venous engorgement on the sixth day of the disease, his nails getting bluish. This gradually became worse, until the evening of the twelfth day, when his face, hands, forearms, feet and legs were blue and cyanotic. As his pulse and first heart sounds became weaker, his temperature fell, until the evening of the twelfth day it would only register normal in the rectum. His mind became clouded and he lapsed into a semi-coma. He was given tested and pure Tr. Dig. in large doses without effect. When he began to smother we gave him strychnine. He was given whisky also, and I gave him morphine, although I would not do it now; for experience with this type of cases has taught me it is not best. On the evening of the twelfth day he was fighting so much for air that it was necessary to keep him propped up. His pulse was 162, breathing 52, short and quick. His first heart sound feeble and greatly muffled. The second pulmonic had lost its accentuation and there was general cyanosis. About seventeen ounces of blood was taken from his right median cephatic vein his heart sounds became some better, the cyanosis was slightly improved and he was able to lie down during the night. The next morning his symptoms returned and it seemed that he was going to die very soon. He was again bled and this time fully thirty ounces, until his cyanosis and heart sounds were greatly improved. His heart sounds, although weak, were clearer and he went into a quiet sleep. His temperature began to rise and that afternoon it was 101 1-2. The cyanosis became better and his mind clearer; and the dyspnoea was gone. He rested well that night, and the next afternoon his pulse and temperature began to fall together, and the next day, the fifteenth of the disease, he was over the pneumonia.

I relate this case fully because it was among the first in which I used venesection. If I were to treat him now I wouldn't let him get in such a desperate condition before I bled him; and I'd not put much reliance in heart stimulants, and I'd use morphine very cautiously and carefully.

Case 3.—J. B., male, age 16, weight 130 pounds, height 5 ft. 5 in. This boy had a lobar pneumonia in which the temperature was never high, gradually becoming lower as the pulse became faster and weaker. On the ninth day by rectum it was 99 1-2; his pulse 148. The first heart sound was weak and muffled. The second pulmonic had lost its accentuation. He was cyanotic and was fighting for air. I bled him about fourteen ounces. All his symptoms improved. That evening his temperature came up to 103. The next day he was much improved and was dismissed two days later.

Case 4.—S. D., female, age 13. This girl had had two other attacks of pneumonia within two years. This was a double pneumonia. When I saw her she had been ill five days, and her temperature by mouth was 103 1-4; pulse 122; heart sounds fairly good; no cyanosis. The next day condition unchanged. On the seventh day her temperature was lower, 102; pulse 130; but the heart sounds were only fair, the first sound being weaker, and the second pulmonic was not accentuated, with some little blueness of the nails. She rested fairly well that night, but about 6 a. m. the next day she suddenly became worse. Her physician gave her at 8 a. m. a hypo of strych. sulphate 1-50 of a grain, nitroglycerine 1-100, and digitalin 1-100. When I saw her at 9 a. m. she was semi-conscious, cyanotic, extremities cold, temperature per rectum 99, epigastric pulsations, dyspnoeic, pulse 172, weak, feeble and irregular. There were so many rales of all kinds over the chest that it was impossible for me to tell much about the heart sounds. I judged this to be acute dilation of the right ventricle with some pulmonary oedema. I extracted eight ounces of blood from the left median cephalic vein. She regained consciousness, was less cyanotic and her dyspnoea was relieved. At 2 p. m. her rectal temperature

was 102 and pulse 158 and stronger. At 6 p. m. her temperature was 104, pulse 158. At 9 p. m. there was slight crepitation in the back of the right lung and her skin was moist. The next morning at 7 a. m. the pneumonia was mostly resolved. Temperature 100 1-2, pulse 104. After she was bled she was given a 1-50 grain of strych. hypodermically every four hours for twenty-four hours, and 10 drops of fat free tinct. of dig. every four hours for four doses. Her recovery was uneventful.

Case 5.—I. H., a girl, age 2 years 10 months. Had been ill about four days when I saw her. She had a large spleen from chronic malaria, and as a good many of these patients do, she had a pneumonia of the lower left lobe. She didn't seem to be very sick. Rectal temperature 103 2-5, pulse 132, heart sounds good. I gave her a free calomel purge, 1 gr. of quinine every four hours and paregoric as needed. She did well until 3 p. m. of the following day, the fifth, when she became very short of breath, cyanotic and cold. As her parents lived thirteen miles in the country, I didn't see her till 6 p. m. Her respirations were quick and sighing. She was cyanotic and had epigastric pulsations. The first heart sound was weak, second pulmonic also weak, and pulse 192. Rectal temperature 100 1-3. She was semiconscious. I opened the left median basilic vein and extracted five or six ounces of blood. Her symptoms all improved. She rested quietly and slept fairly well all night. I gave her three drops of pure fat free tincture of dig. every four hours. Next morning at 11 her temperature was 102 1-2, pulse 148. Blueness about the nails still present but much improved. The lung resolved the next day and she was dismissed the next.

She is the youngest patient in whom I have ever seen these symptoms, but they were evidently due to acute dilation of the right ventricle.

Case 6.—E. H., stout young boy, 14 years of age. Was beginning to break out with measles when he developed a double lobar pneumonia. He was in bed with his brother, who, after getting over the measles, had a double lobar pneumonia. His temperature for five days was 104, pulse 108, heart sounds good, the second pulmonic of course being accentuated. On the morning of the sixth day his temperature was 103 2-5, pulse 144, nails and lips slightly blue; first sound not so good; second pulmonic was still accentuated but had lost some of its sharpness. My better judgment told me to bleed him then, but I gave him ten drops tincture of dig. every four hours instead. At 11 p. m. I was called to see him. All his symptoms were worse; the second pulmonic was not so sharp and was losing its accentuations; pulse 160. He was fighting for breath and was delirious. I took twelve or fourteen ounces of blood from his right median cephalic vein. His symptoms were so much improved that he rested well the rest of the night. The next afternoon, the seventh day, his temperature went to 105, but his pulse, running from 135 to 150, depending on exertions and cough, was a better quality, and the cyanosis was much better. I gave him a good purge, reduced his fever with cold water and left him with a placebo. He did well—temperature running from 103 to 105, pulse from 125 to 150, heart sounds fairly good. And on the evening of the eighth day, forty-eight hours after the bleeding, he had his crisis.

Case No. 1 illustrates the type in which venesection will benefit in the beginning of pneumonia. He wasn't bled to increase leucocytosis, but rather to relieve the heart, the dyspnoea and the delirium. Case Nos. 2 and 3 illustrate the type in which the temperature at first high or moderately high gets worse from day to day, as the first sound gets weaker and the second pulmonic loses its accentuation. Cases 4 and 5 show us the type in which we have acute dilatation of the right vesicle. Case 6 is the kind we meet with most. In these the temperature runs high all along, and from the 4th to the 9th day the right heart begins to show signs of distress, in a weakened first sound or a lessened accentuation in the second pulmonic.

PNEUMONIA.*

By Fletcher Wilson Galloway, M.D.,
Florala, Ala.

Pneumonia is as old as the human race. It has been studied by the most scientific physicians through all ages. New theories have become old and have been discarded. At pres-

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ent we are searching as never before for a solution of this fatal malady which claims as victims in the United States alone each year 126,317 persons, a mortality to population of 12.6 per cent of the total number of deaths.

In this age of progress there has dawned upon us a new era in medical science, therefore it would be easier to condemn than to discuss any treatment, as skill in the treatment is in its infancy.

To enter into an elaborate discussion of the pathology would be folly and a waste of time. Beyond controversy the pneumococcus, streptococcus and staphylococcus invade the lung tissue and the malady is manifest. It is also beyond controversy that sudden changes in temperature furnish a fertile soil, the seasons most favorable being winter and early spring.

Pneumonia is not preventable as many other diseases, such as typhoid fever, smallpox, diphtheria and other infectious diseases, but regardless of research, regardless of theory, regardless of progress in medical science, it claims its high record of mortality. However, the mortality is sightly declining but not in proportion to that of many other diseases.

In search of a specific great minds have differed; they have become confused with their own ideas, which prompts us to quote the well known Osler, who says: "He is the best doctor who knows the worthlessness of most medicines."

There is no disease which responds to treatment so poorly as pneumonia. It is self- limited and we all look forward with much anxiety for the crisis.

One treatment in a number of cases will give good results. The same treatment in an equal number of other cases will give bad results, and regardless of any treatment the majority of cases take a limited course. Therefore it is bad judgment to treat all cases alike. Let your treatment be expectant. I might say, treat the patient and not the disease.

To determine accurately as possible the progress that is being made in the treatment of pneumonia I have collected statistics embracing the registration area by states from 1901 to 1912.

The registration area includes about two-thirds the population of the United States, the majority of the Southern States being left out.

The states included in the registration area for 1912 are: California, Colorado, Connecticut, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Utah, Vermont, Washington, Wisconsin.

The death rates of the registration area can be compared only in a general way because they do not relate to the same aggregate of population.

The registration area for deaths consists of those states in which the laws for the registration of deaths are of such character and so enforced by the states authorities as to warrant the inclusion of the returns in the census reports on mortality statistics.

Certain cities in so-called non-registration states are also included, registration in which is conducted for the most part under local ordinances. Therefore taking the registration area as the most accurate record by which to arrive at a conclusion we are able to show whether the number of deaths to population is increasing or decreasing.

The death rate to each 100,000 poulation in the years

1901 were	161.4
1902 were	155.7
1903 were	155.1
1904 were	171.4
1905 were	148.8
1906 were	145.5
1907 were	156.5
1908 were	130.9
1909 were	137.6
1910 were	147.7
1911 were	133.7
1912 were	132.2

I have also collected statistics from the pub-

lic health service which show in the years 1904 to 1908, inclusive, there were treated 1,036 cases with 196 deaths, a mortality of 19.11 per cent.

In the years 1909 to 1913, inclusive, there were treated 830 cases, with 184 deaths, a mortality of 22.1 per cent, an increase in mortality of 3 per cent the latter five years over the former five.

Therefore, the above data from the census bureau is conclusive that the mortality to population in the latter six years compared with the former six has reduced 99.3 per each 100,000 population.

Data from the public health service is conclusive that the mortality in the number of cases treated the latter five years over the former five has increased 3 per cent. Using the registration area as a basis for computation for non-registration states we have shown that the mortality to population is slightly declining.

Using the public health service as a basis for computation in the number of cases treated we have shown the mortality in the latter five years has increased 3 per cent over the former five years.

I am inclined to believe if we had statistics from all the rural districts the mortality would fall below the above. Statistics show that in all cities the mortality is greater than in the rural districts.

The registration states as a whole show a rate of mortality slightly lower than of the registration area for each year and periods given in the table, the figures for 1912 being 13.6 per cent per 1,000 population.

The rural portion of the registration states uniformly shows a lower death rate than the urban. The urban rate for 1912, which was the lowest on record, was 14.7 per cent, a decrease of 2.7 per cent, or 15.5 per cent, from the rate shown for the five years period 1901 to 1905, while the rural rate fell from 14.1 per cent to 12.4 per cent, a reduction of 1.7 per cent, or 12.1 per cent.

I would not consider this paper complete without a resume as to technique in prophylactics and environments. The chamber should be as well ventilated as if in the open. If ventilation in a room is inadequate remove to a well ventilated place.

Isolate, give general baths, change gown and bed linen each twenty-four hours; boil linen at once and disinfect water in which patient was bathed before disposal. Disinfect all bowel contents and sputum before leaving the chamber. View the surroundings, then cope with the situation.

Some cases are surrounded with intelligence, others with ignorance; some are able to employ a trained nurse, others are not; some are in cities, others in the country; some must have friends in the chamber, others are prevented; some will carry out instructions, others will not; some will take baths and regard prophylactics, others will not; some will open up the chamber allowing fresh air, others will close it; therefore each community presents a separate aspect.

Patient should be kept cheerful under any and all circumstances. In the majority of cases the physician is not called until the disease is well developed.

In pneumonia each physician has views peculiar to himself; therefore I shall offer no treatment. I have exhausted my own skill to find each an individual case. The most important of all things is fresh air. Let the patient have it day and night regardless of temperature or moisture. A well regulated temperature is best; however in some cases this is impossible. Fresh air is more beneficial than oxygen from a tube, therefore we cannot supply nature's great gift, oxygen, to a patient in a room suffering from deprivation as nature itself presents it.

Keep the glandular system wide open during the entire course. Keep the heart pumping with force sufficient to receive the maximum of oxygen.

There are three principles involved in this fatal malady. First of all, give fresh air; second, keep the glandular system wide open;

third, keep the heart pumping, thereby absorbing oxygen and feeding the patient with the most vital of all foods.

Give oxygen, give purgatives, give cardiac stimulants, and you will not have toxemia, you will not have delirium, you will not have high temperature.

In connection with the above administer such agencies as will absorb and eliminate the inflammatory product, thereby preventing the blocking of the air spaces and consolidation. Let the blood shoot through every channel with least resistance possible.

Keep the glandular system open, keep the lungs open, keep the heart beating with maximum force, and the percentage of blood letting will be reduced to a minimum.

At the beginning if you allow the glandular system to become locked, within four or five days blood letting becomes a curative factor, thereby replacing poisoned blood with a saline solution.

Use cold water or ice in some form to reduce temperature. Often an ice bag over the affected lung will reduce the temperature and relieve pain almost instantly, thereby serving a double purpose. Through the entire course do not hesitate to bathe and apply ice to the affected lung as conditions indicate. At least give one general bath each twenty-four hours. In children, and in some adults, it is impossible to bathe in cold water or apply ice. In these cases other agencies may be used to meet the fancy of the attendants and the discretion of the physician.

In a few cases high temperature will do more harm, especially if delirium from temperature, than an antipyretic. This agency may be used where no other is expedient. Do not under any circumstances depress the heart. Bathing and friction stimulate the heart and nervous system, increasing oxidation. Agencies which depress the heart prevent oxidation, thereby increasing toxemia and doing harm.

Give light but nourishing food. Do not load the stomach. With plenty of oxygen the red blood corpuscles are nourished and retain their proportion. With cardiac stimulants the red blood corpuscles are carried to the lung for the reception of oxygen. With free purgation the glandular system is kept open, thereby relieving heart strain and preventing dilatation, which is so often the case; also facilitating the elimination of toxines.

With ice over the affected lung inflammation is reduced. With cold baths the nervous system is stimulated, thereby relieving or preventing delirium. Agencies which absorb or eliminate the inflammatory product present a clean surface, thereby allowing a free flow of blood to the lung. Begin agencies which cleanse the lung at the early part of the second stage and continue through the attack. If the above measures are carried out, with good nursing, few cases will suffer from a consolidated lung, nor will it be necessary to perform blood letting or the administration of a saline solution.

With serums we have good and bad results. If the microscopical findings reveal only the pneumococcus serum will serve you well. However, in the majority of cases, especially broncho-pneumonia, streptococcus and staphylococcus are present. In this even a multivalent serum should be used.

It is very essential when using serum to make a microscopical examination every twenty-four hours. In the beginning you may have a single infection, and as the disease progresses other germs may invade the same field. Therefore watch your patient carefully or you may be misled, and regardless of the amount of serum administered the patient may suffer for lack of proper treatment. My experience with serums has been equally as unsatisfactory as with medication. In all forms of treatment watch the patient closely and meet any and all indications without delay.

With serums, as in other forms of treatments, let the patient have fresh air.

May I relate a case which recovered under the most unfavorable conditions, as I thought at the time.

Adult, 24 years old, on a second floor in a room with no fire. Cracks over the entire wall were large, admitting plenty fresh air, the same as if in the open. Rain blew through these cracks and ran down the wall and over the floor, which kept the room wet and damp during the entire attack. No fire was in the room except a small lamp at night.

At the time the temperature was low, slight snow and sleet fell during the period. This condition of the atmosphere existed from the beginning of the attack until the sixth day. Patient was kept well protected with blankets with a bag of ice over the affected lung when temperature would go high. He received heroic purgation through the entire attack with mercury. He received infusion of digitalis sufficient to keep the heart pumping with great force and he received five grains of carbonate of ammonia in one dram saturated solution potassium bicarbonate every two hours; also syrup of wild cherry sufficient to keep the lung clean. He received at 8 p. m. each day a tepid bath in the cold room and would fall asleep soon thereafter. At 6 a. m., 12 m., and 6 p. m. he had one soft-boiled egg with cracker and butter, with a glass of port wine with crushed ice. I have never been more agreeably surprised in any case. I have never treated a case that did better. The nurses were his mother and his wife, who were themselves sick and unable to properly nurse the patient. Recovery was rapid and complete.

Dr. I. L. Van Zandt, of Ft. Worth, Texas, has been treating pneumonia since 1894 with creosote with remarkable success, having treated 1,130 cases with 56 deaths, a mortality of 4.96 per cent.

Dr. Morgenroth, of Berlin, has conducted a series of experiments with optochinum, a derivative of quinine, with excellent results where only pneumococcus infection was present.

The drug is administered like salvarsan and must be used within 48 hours. Every case recovered in from 24 to 48 hours.

Dr. Bjorkman, Professor of Physiology, Milwaukee Medical College, says regarding broncho-pneumonia: The pneumococcus, streptococcus and staphylococcus are the causes. Fortunately we have a remedy, "colloidal silver," which is offensive to all three, especially the streptococcus, which is the investigator of the most severe types. With a morning and night dose per rectum, with hydrotherapy, the malady yields comparable to diphtheria under antitoxin.

SUMMARY.

We have shown from statistics that nature or some prophylactic measure is reducing the mortality to population.

We have shown from statistics that the mortality in the cases treated is increasing.

Above all things let the patient have plenty of fresh air. Stimulate every eliminative organ to prevent accumulations of toxines.

Reduce temperature with cold water and do not fail to give a general bath each twenty-four hours. Give nourishing food, but do not tax the stomach.

This summary might be included in one word—CLEANLINESS.

Keep patient clean inside and outside, allow plenty of clean atmosphere and give clean food.

ACUTE GASTRIC DILATATION.*

By Will Mason, Jr., M.D., and Newton Evans, B.S., M.D.,
Murray, Ky.

Our reason for presenting this subject to you is not that we have anything essentially new as to the etiology or the treatment of the condition to call to your attention. But the importance of the subject is so great as to make it of extreme interest, because of its frequency of occurrence, because of its liability to be overlooked, because of its extreme fatality if untreated, and because recovery is so frequently satisfactory under properly directed treatment.

Its frequency is attested in our own experience by the fact that although it is usually held to be a comparatively rare condition, yet

*Read before the Southwest Kentucky Medical Association, Paducah, Ky., May 12, 1914.

in our work at Murray we have seen in the past four years at least seven cases. Pilcher, of Brooklyn,[1] writing (in 1911) says: "That it is not as rare a condition as has been heretofore supposed is evidenced by the fact that within the hospital experience of the writer over 50 cases have been observed."

That this serious condition is very amenable to treatment is also shown by our limited series of cases in which five of the seven recovered, there being in the two cases which were lost other conditions which made recovery impossible. In regard to the great value of prompt treatment Pilcher, in the reference noted above, says: "In our series (over 50 cases) cases of prompt attention and proper treatment, the death rate was diminished from about 70 per cent to below 5 per cent. The very great mortality of these cases usually is denoted by Neck's statistics (1908) showing in 64 cases a death rate of over 73 per cent.

The condition was first clearly brought to the attention of the medical profession by Hilton Fagge in 1872.[3]

In 1908 Laffer had collected references to 217 cases with a mortality of 65.5 per cent. In an incomplete search of the literature since that time we have been able to find references to 82 additional cases, including the 7 cases reported by us at this time. According to these reports they show a mortality of about 40 per cent.

As to the real pathogenesis or mechanism of this condition, practically all who have studied the matter agree that the problem is still unsolved. Among the theories advanced some hold the condition to be primary in the stomach, a paresis of the gastric musculature rather than any mechanical obstruction to its outlet, others assign the condition to a central nervous inadequacy resulting in paralysis. Another explanation is the presence of a mechanical obstruction of the duodenum caused by kinking or by pressure from the mesenteric vessels across the duodenum. The first explanation, that the weakness is primary in the stomach walls, an atony of its musculature, seems to have the greatest number of adherents. In some of the cases at least there is shown to be a dilatation of the upper portion of the duodenum accompanying that of the stomach with patulous pylorus. In fact, the constant presence in the stomach contents in this condition of a large proportion of dark-colored bile would indicate the involvement of the duodenum and a patulous condition of the pylorus.

Acute dilatation of the stomach is looked upon as essentially a complication of surgical operations, but it is by no means confined to this condition. In the 64 cases reported by Neck[2], 43 per cent followed surgical operations. The majority were laparotomies and more of them were for gallstones than for any other condition. In Conner's[3] lists of 102 cases 41 per cent followed major operations and about the same proportion as in Neck's series were laparotomies and more for gallstones than for anything else. From both of these lists it appears that the majority of instances of acute dilatation occurred in other conditions than surgical operations. In our list of seven cases five followed major operations and one case followed severe injury after the patient had been in bed twenty-eight days. Some of the other conditions in which this trouble is encountered are gross errors in diet particularly overloading the stomach after a period of partial or complete starvation. One of our cases really belongs to this category. A child five years of age, as the result of a gradually increasing stenosis of the esophagus following ulceration from swallowing caustic, was in a starving condition. Instrumental dilatation of the stricture enabled the child to eat and drink freely and the parents permitted him to drink large quantities of water and to eat freely. As a result acute dilatation occurred which resulted fatally. In this case the condition was such that aspiration and lavage of the stomach were practically impossible and the acute dilatation could not be adequately treated.

Such severe acute infections as pneumonia and typhoid fever are frequent causes. It is sometimes seen in the course of wasting diseases and after severe injuries.

Symptoms.—The most characteristic symptom is the vomiting of dark green material usually in large quantities or in small quantities at frequent intervals. The character of the vomiting is very much like that of intestinal obstruction. In fact, the material vomited resembles that seen in the earlier stages of intestinal obstruction before it becomes stercoraceous in character. However, sometimes in the worst cases of acute gastric dilatation the vomitus may have some fecal odor. This dark green slimy material welling up in the throat is most characteristic. Of course, in some instances the dilatation may become extreme and a great quantity of fluid accumulate in the stomach before vomiting begins. In these cases, when the stomach tube is introduced the fluid gushes out, anywhere from a pint to several quarts appearing. In some cases the amount of fluid taken from the stomach in a few days amounts to a number of gallons. A part of this fluid has its origin from the walls of the stomach itself as a transudate and a part of it regurgitates from the small intestines through the pylorus.

The other important symptoms are great prostration, much gastric pain, discomfort and distention of the abdomen, especially in the epigastric region. This distention of the abdomen is due to the fluid in the stomach and consequently the abdomen is dull upon percussion, although in some cases there may be much gas in the stomach with the fluid giving a tympanitic percussion sound. There is usually with these symptoms a very decided dyspnoea and great distress which is wonderfully relieved by evacuation of the stomach. The pulse, of course, gradually becomes weak and rapid as the condition gradually depletes the blood of its fluid. We have noted in the more severe and advanced cases a peculiar somnolence which disappears as the patient improves.

The condition comes on unexpectedly usually and insidiously. It usually appears two or three days after the operation where it follows a surgical operation, but may be delayed for a number of days; in one of our cases coming on six or seven days after the operation for intestinal obstruction and following the taking of food.

Untreated, the condition usually grows rapidly worse and the patient may die within a few hours or may last for days. One case reported[3] lasted for thirteen days, finally succumbing. On the other hand, if persistently treated, some cases which last for many days may recover. One case reported by Pilcher was treated for eighteen days by lavage and recovered. One of our cases was treated in this way for four days and recovered.

In our own opinion, there are many cases of acute dilatation, which may be called of a mild type, which are not usually recognized as belonging to this class and which recover on evacuation of the stomach and lavage, but in which the symptoms for the time being are typical and the stomach contents is like that seen in the more severe cases. We have records of a number of such cases which are not included in the histories presented here.

Treatment.—The all-essential procedure in the treatment of this condition is the evacuation of the stomach and lavage, using for lavage simply warm water or warm normal saline. In the milder cases one treatment of this kind may suffice and the patient recover from the symptoms without further treatment. But in the severe attacks the lavage must be frequently repeated at intervals of about two or three hours, or as often as the stomach refills itself as indicated by distention and vomiting. Along with this all-important means of relief there are other details which are most helpful. Posture is next to lavage. Some say it is best to lie on the left side, while others advocate the strictly prone posture (a belly posture) lying directly upon the face. Others, and perhaps the majority, say a posture upon the face but inclined to the right side is most effective.

In our opinion, the posture is of little importance as compared with lavage.

While the condition continues absolutely nothing in the way of food or drink should be given by the mouth. Another very important adjuvant is the supplying of fluids to the body by the continuous drip-enema or by intermittent enema, in this way replenishing the body fluid lost from the stomach. The enema consist of plain water or possibly of salt solution.

This condition is evidently closely related in nature to so-called paralytic ileus, a paresis of the bowels, and in fact the two conditions are usually associated. Consequently, those measures indicated in intestinal paralysis are of use here. We have found the most useful remedy to stimulate intestinal peristalsis is to introduce into the stomach through the stomach tube just before its removal after the completion of the lavage a large dose of cathartic, such as calomel and podophylin, and also at times a solution of epsom salts and then quickly removing the tube. Probably something is accomplished by the hypodermic administration of such intestinal stimulants as atropine, 1-100—1-50; eserine, 1-100—1-50; and strychnine, 1-40—1-20 or 1-10 gr.

CASE HISTORIES.

Case No. 1—Mr. A. E., aged 32. Patient was operated upon June 7, 1913, for acute intestinal obstruction, caused by a hernia of the colon through the diaphragm. Was removed to his room in good condition after the operation, and Murphy drip begun. The bowels moved freely a number of times for the first two or three days. The temperature remained at normal after the first day, and the pulse, which were rather rapid at first, gradually came down to 87 per minute. There was no vomiting.

Nourishment by the mouth was begun on the third day and gradually increased till the morning of the sixth day after the operation, when patient partook rather liberally of light diet. That evening he did not feel so well and doses of epsom salts and castor oil were given and vomited. The next morning he began vomiting green fluid, and the upper abdomen was greatly distended. Gastric siphonage brought a great quantity of fluid from stomach, over one gallon of dark green fluid; the patient gradually grew worse and became stuporous. Lavage was continued at frequent intervals for the next four days, when lavage was discontinued and first food given by stomach, as the condition was better at this time. During the period when lavages were being given frequent saline enemas as well as nutritive enemas were kept up.

The amount of fluid removed from stomach at each lavage gradually decreased as the condition improved. The patient made a complete recovery.

Case No. 2—Mr. A. S., aged 36. On Christmas day, December 25, 1913, the patient was injured by an explosion resulting in a fracture of the right femur just above the knee, an extensive lacerated wound of the right knee, a large incised wound of the forehead and cerebral concussion. His wounds were dressed, the fractured leg being put up in a Hodgins splint. For the first six days he was unconscious, but his mind gradually became clearer. He made a satisfactory recovery till the 21st of January, the twenty-eighth day after the accident, when, following the administration of a cathartic which produced free watery actions, he began to vomit. The vomiting continued for thirty-six hours, and when we saw him was typical in character of acute gastric dilatation. One treatment with the stomach tube in which we removed one quart of dark green fluid from stomach and followed that by thorough lavage relieved the condition, and the patient made a good recovery from that time on.

Case No. 3—Mrs. G. O., aged 46. This patient, who was rather fleshy, was operated upon July 5, 1912, on the fourth day of an acute attack of appendicitis with rupture and beginning generalized peritonitis. The appendix was removed and the abdomen drained, and patient put to bed in good condition. Some nausea was present but no vomiting. On the afternoon of the third day she complained greatly of shortness of breath and dyspnoea was extreme and soon began to vomit green colored fluid. One lavage relieved the dyspnoea and vomiting, and the patient made an uninterrupted recovery.

Case No. 4—Mrs. G. A. Was operated upon in April, 1911, for uterine fibroid and hysterectomy performed. After the second day she began to vomit green fluid. Repeated lavage resulted in complete recovery.

Case No. 5—Mrs. T. O. Operation for pelvic tumor. Vomiting persisted after patient awoke from anesthetic and finally assumed the character of dilatation of stomach. After several lavages

the condition was relieved and patient recovered.

Case No. 6—B. H., boy aged 16. This was a case of neglected appendiceal abscess. The abdomen was opened on September 2, 1912. The patient appeared to be in fairly good condition before going to the operating table. A large appendiceal abscess was opened and drained. During the progress of the operation the patient vomited a considerable quantity of greenish brown fluid. After returning to his room and recovering consciousness, vomiting of the same kind of fluid continued. The patient was apparently in a condition of shock. The record shows that at one time the vomitus had a somewhat fecal odor. During the night the patient continued to vomit, notwithstanding frequent lavages. At 6:30 the next morning following the day of the operation the patient died, apparently from shock and exhaustion.

Case No. 7—L. H., boy aged 5.—When three years of age had swallowed a quantity of lye, resulting in a gradually narrowing stenosis of the esophagus. In December, 1910, when we saw him he was unable to swallow liquids or solids. Instrumental dilatation was successful, and during the next twenty-four hours following the operation the boy was allowed to drink great quantities of water and eat much food. He developed acute gastric dilatation and died.

In all severe illnesses and after severe injury and particularly after major operations one should be on the lookout for this complication. It should be suspected where nausea from anasthesia persists beyond the second day and in all cases where vomiting appears in the second or third day after operations. The gravity of the condition and its frequent relief by prompt and energetic treatment makes its early recognition of the greatest importance.

1. Year Book. Pilcher Hospital, 1911.

2. Quoted in Musser & Kelley, Practical Treatment, 1912, Vol. 3, p. 358.

3. Dean & Ashhurst, Surg. of Upper Abdomen, 1909, p. 147.

ADRENALIN-COCAINE SURFACE ANESTHESIA.

By R. S. Cauthen, M.D.,
Charlotte, N. C.

The object of this paper, with a report of cases, is to relate my findings in a number of experiments with cocaine hydrochloride as a surface anesthetic in operations upon the nasal septum and turbinates. The susceptibility of a large number of patients to cocaine, manifested by very decided toxic symptoms when applied locally to the mucous membrane in solution or injection beneath the mucous membrane, has led me to undertake some experimental work with the view to getting complete anesthesia without producing the toxic symptoms. In my experience, the toxicity has been alarming in some eight or ten cases.

Below will be found a report of three cases in which I have obtained complete anesthesia by a new method of application, and at the same time absolute freedom from any toxic symptoms which the same patient had experienced to such a marked degree after a local application of the same anesthetic (cocaine hydrochloride) on two previous occasions.

Case No. 1—Miss T—, age, 25, music teacher. General health, good. October 10, 1913, tonsilectomy. Anesthetic, 5 per cent cocaine hydrochloride solution applied locally to surface of tonsils, pillows and adnexa. Duration of operation, twenty minutes; condition of patient after operation: Toxic symptoms very pronounced, with pulse 140 and greatly excited; pupils dilated; outbreaks of screaming and weeping. All these symptoms continued for about five hours. Patient became quieter after the administration of an opiate.

Two weeks later same patient was operated on for removal of right middle turbinate, and the anesthesia was produced with the same strength cocaine solution. Duration of operation, fifteen minutes, with the same toxic symptoms as manifested during previous operations, except, if any difference, the mental symptoms were more severe.

February 25, 1914, the same patient who had been previously advised to submit to a submucous resection of the nasal septum, returned for this third operation very reluctantly, because of the untoward experience with the cocaine anesthesia, and I, on account of the tendency toward excessive hemorrhage, decided to make an application of adrenalin 1:1000, to all mucous membranes, both of the septum and turbinate, which I removed at this sitting. Instead of using a solution of cocaine as I had done previously, an application of small granules of cocaine hydro-

chloride with a cotton-wound applicator, dipped in adrenalin, was made. This was applied freely. Complete anesthesia, hemorrhage practically nil, and after nearly two hours duration of operation patient did not manifest the slightest symptoms of shock or any toxic effect from the cocaine nor the operation.

Case No. 2—Mr. K—, age, 30; traveling man. General health, good. January 10, 1914, tonsilectomy. Anesthesia by 5 per cent cocaine hydrochloride solution, local application (no injection). Duration of operation, twenty minutes; condition of patient at conclusion of operation, very nervous, frequent pulse (150 per minute), hysterical, weeping and irrational. Condition continued for five hours after administration of an opiate.

March 29, second operation, same patient. Operation, submucous resection of nasal septum; removal of both middle turbinates. Prior to making application with granules of cocaine on cotton-wound applicator, dipped in adrenalin, mucous membrane covering septum and turbinates, was treated with two applications, five minutes apart, of adrenalin solution 1:1000 in same manner as Case No. 1. The adrenalin produced a blanched appearance of the parts. Complete anesthesia produced in three to five minutes; operation, bloodless; total absence of toxic symptoms was a distinct feature of the case.

Case No. 3—Miss C—, age, 24. February 16, 1914, application 5 per cent solution of cocaine for purpose of examination of nasal passages. One application produced marked depression; very rapid and feeble pulse; nausea; faintness, and hysterical symptoms. One week later polyps removed from nose. An application of 5 per cent cocaine solution produced all the toxic symptoms enumerated above, which lasted about three and one-half or four hours. On March 10 a submucous resection of the septum; one middle turbinate and the ethmoid cells were removed under cocaine anesthesia, after first applying to the mucous membrane a 1:1000 solution of adrenalin before the granules of cocaine were applied. The patient had no depression; pulse was 80; no toxic symptoms of any kind whatsoever, and after the lapse of one hour and forty minutes (time required to finish operation) patient was as composed as before the operation.

CONCLUSIONS.

First: That absorption from the mucous membranes of the nose is greatly retarded by the action of adrenalin chloride upon the local vessels when applied to its surface.

Second: When strong solutions of cocaine are applied to the mucous surface, and even granules of cocaine rubbed on the surface, no toxic effect is produced after the vasoconstruction produced by the adrenalin.

Third: By first applying a 1.1000 solution of adrenalin to the mucous surface of the septum and turbinates, and following this with granules of cocaine hydrochloride, rubbed on well with a cotton-wound applicator dipped in adrenalin solution, complete anesthesia is produced in from three to five minutes without the patient showing any toxic effects afterward.

Fourth: May I make the speculation that strong cocaine solutions, rather full strength cocaine (the granules themselves) have, as well as adrenalin, a vasoconstrictor action. Granules, therefore, augment the action of adrenalin and there is less absorption than with solutions.

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TYPHOID PERFORATION WITH ABSCESS APPENDIX—OPERATION—RECOVERY.*

By W. C. Gewin, M.D.,
Surgeon to Birmingham Infirmary.
Birmingham, Ala.

Typhoid fever being one of the common diseases we meet so frequently and the death rate so high when perforations do occur, I think I am justified in presenting this paper to the profession.

We all appreciate the fact that marked progress in the early diagnosis of typhoid has been made in recent years. Especially is this true in differentiating malaria and in recognizing the milder types. By the hydrotherapy treatment we have made our patients more comfortable and with the proper feeding we have reduced delirium, dry tongue and the old symptoms of years back to a minimum. In the absence of these symptoms the mortality

*Read before Alabama State Medical Association, Montgomery, Ala., April, 1914.

has been reduced materially and with the strides in medicine surgery has kept apace.

Today when we have a typhoid perforation we realize at once that if we wish a recovery we must operate early, and by so doing we reduce our mortality. Perforations occur in two or possibly three cases out of every hundred, so states DaCosta and many other eminent authorities. Some writers tell us about 70 per cent of all perforations occur in the second, third or fourth week, yet there are cases on record taking place as early as the fifth day and as late as the thirteenth or fifteenth week. Usually the perforation will be found two to four feet in the lower ilium and 12 to 15 inches to the ileocecal valve. We may have a perforation in the rectum, the appendix, any part of the ilium, jejunum or sigmoid. As a rule, the perforations are single, yet we may have any number. Most frequent, the site is opposite the mesenteric attachment. Yet a great many authorities tell us that the site may occur along the line of the mesenteric attachment and when this does occur, we can appreciate the fact that we may have an intraperitoneal abscess.

Osler states that the mortality is so large following typhoid perforation without an operation, that we should never expect any recoveries, unless surgery is called in, and when these cases are operated upon the mortality must be based upon each individual case, as the following factors enter in to make our mortality: size, location of the opening, kind of infection, the condition of the patient as to constitution, the mobility or peristalsis, distended and full gut or empty. We generally have acute peritonitis develop immediately and as the patient is in a weak, debilitated condition we have less resistance than we usually get in other abdominal cases, as the adhesions are so light and delicate they are practically of no value in preventing the spread of the infection.

I would rather operate on a suspected case early and find no perforations than to permit a case to go any length of time with a perforation, as there is a great deal less harm done in exploring them than in delaying when there is an opening.

DIAGNOSIS.

The severe abdominal pain which is usually in the lower abdomen, possibly in the right iliac region, or may be confined to the scrotum in male or the perineum in female. Pulse may be quickened or retarded. Respiration may be more rapid or shallow. As to temperature, there may be a sudden drop or rise and this followed by a fall. Onset in a great many cases very sudden. The tenderness and rigidity may be general or localized and is present in most cases. If vomiting, nausea and hiccough have been absent preceding the time we think we have a perforation, we can weigh them well, as they have their meaning. The pain is generally paroxysmal and all authorities state it is rarely ever constant, except in very few cases.

LEUCOCYTES.

In most cases we have a sudden rise and some authors mention the fact that we have a steady rise from hour to hour and we may not have a sudden falling off. Some typhoids run a low leucocyte. If we have made these counts regularly, we are then in position to say what is high in the given case and when a perforation has occurred.

ABDOMINAL SYMPTOMS.

Pain, tenderness, distension, after a few hours waiting, rigidity. Sometimes we encounter dullness, due to the escape of fluid into the abdominal cavity. We usually have no bowel movement following perforation. We may or may not have liver dullness. If we do have the above symptoms, it is far better to make an exploratory incision and find no perforation than to take chances.

REPORT OF A CASE.

A boy, P. J. (white), age 13 years; a patient of Dr. A. E. Wilks; had been sick with typhoid fever for twenty-eight days. The patient had almost run a normal temperature for several days preceding the perforation. A few days before the perforation occurred the temperature ranged

from 101 to 104. On the morning of August 19, 10 a.m., patient complained of severe pain in the right iliac region. The family called their physician, Dr. Wilks, who suggested applying an ice cap over the region complained of, and gave the patient a hypodermic of morphine, grain one-eighth. Dr. Wilks states that at this visit the little fellow had an anxious, pinched expression, temperature 103, pulse 120, respiration 28. He stated to the family that in his opinion a perforation had occurred and consultation was suggested, agreed upon, and a surgeon was called, who saw the case at 4 p.m. Both doctors agreed that there was a perforation and probably a pus appendix. I am informed that at this visit the child presented a very desperate appearance. The surgeon in consultation told the family that the case was hopeless and nothing would do any good. The chances were that the little fellow would die on the way to the hospital or on the operating table, and the best thing to be done was to make him more comfortable by giving plenty of opiates. A hypodermic of morphine, grain one-eighth, was given.

Dr. Wilks again visited the patient at 6 p.m. and thought the condition was somewhat better. It was then suggested that I be called. Dr. Wilks and I visited the patient at 8 p.m. I found the abdomen distended, breathing accelerated, pulse 130, temperature 103 2-5 (rectal), anxious, pinched expression, delirious; leucocyte count 16,450; exceedingly tender in the right iliac region, with a slight mass over appendix. Eructation had been going on for several hours. Liver dullness obliterated. We stated to the family that we believed that the child was in a very serious, desperate condition; that there was absolutely no chance for him except through an operation. This offered very little, but if they were willing, we would do the best that we could. The family readily agreed, as they had been told there was no chance either with or without an operation. The child was now restless and suffering. A hypodermic of morphine, grain one-fourth, was given, an ambulance called, and the patient conveyed to the Birmingham Infirmary at once.

The infirmary was communicated with immediately after the family's consent was given. These people lived four miles from the hospital. By the time the ambulance arrived everything was in readiness for the operation. The patient was carried immediately to the operating room, placed upon the table, and the operation begun eleven hours after the perforation occurred.

Ether was administered by Dr. W. R. K. Beck. The abdomen was opened through the right rectus incision. A great quantity of flaky, yellow fluid with fecal odor was present. The iliocecal valve was located. Beginning at the valve the ilium was thoroughly and rapidly gone over. About 14 to 16 inches from the valve a single, large, round perforation was found. This was closed with a double row of linen sutures. The intestine was then most carefully gone over without finding any further trouble. The appendix was just ready to burst and full of pus. The appendix was quickly removed and two large rubber gauze drains were inserted, one deep down in the pelvis and the other directed up toward the liver. Through and through silkworm sutures were taken. The child stood the operation fine and when he came off the table his pulse was 115, respiration 22.

He was placed in a warm bed and the Murphy-Fowler treatment begun. The next morning the patient's general condition was improved. Pulse 100, temperature 99 (rectal). His condition steadily improved, and he was able to leave the infirmary at the end of two weeks, making a complete recovery.

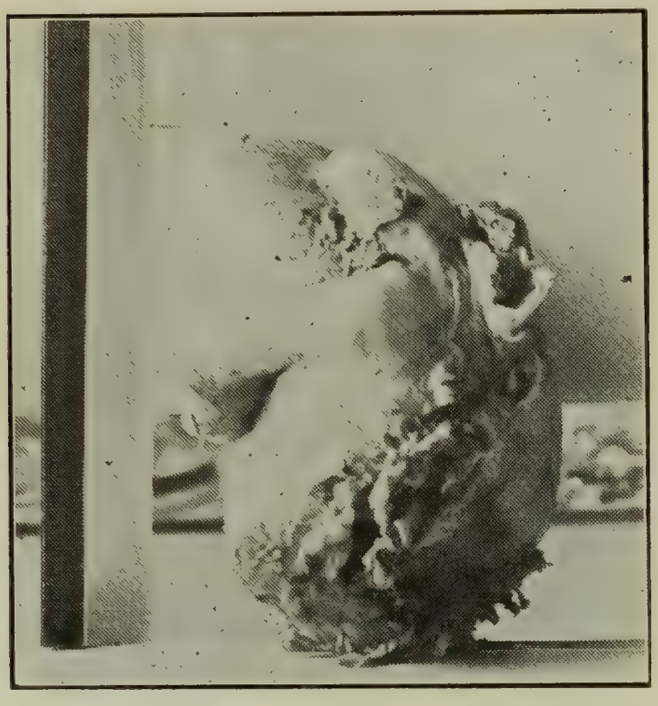
LITHOPOEDION FORMATION. REPORT OF THE OCCURRENCE IN AN EXTRA UTERINE PREGNANCY.

By J. P. McMurphy, M.D., and N. E. Sellers, M.D.,
Atmore, Ala.

Uterine and extra-uterine pregnancy usually occur in the fallopian tube, less frequently in the ovary, and rarely, if ever, in the broad ligament and abdominal cavity, the so-called broad ligament and abdominal pregnancies in all probability being abortions of tubal or ovarian pregnancies.

The most common outcome of extra-uterine pregnancies are: abortion, absorption prior to abortion; absorption after abortion. Suppuration, mummification, lithopoedion and adipocere formation. In this day of progressive and aggressive surgery it is rare for the foetus to have an opportunity to undergo any of these changes, since the symptoms accompanying

rupture are quite characteristic to enable one to make a positive diagnosis; hence we feel that our opportunity in reporting this instance



of lithopoedion formation is due to the patient having lived in a non-surgical atmosphere.

Case: A negress 37 years of age, one child, no miscarriages; the child of the pregnancy is 19

years of age; seven years ago a growth was noticed in the right ovarian region, with paroxysmal pain at first. One day, while doing some washing, severe pain was experienced in the right iliac region and she fainted. No inconvenience resulted from the tumor except from pressure; the tumor was motile for a few months; menstruation regular and normal in every particular.

Examination: Patient fairly well nourished, heart and lungs normal, no enlarged glands, no oedema; uterus misplaced to the left, a sensitive mass posterior; cervix of normal size but abnormally hard; a freely movable hard mass in the abdominal cavity; urine normal.

Diagnosis: In view of the symptoms of rupture and motion were brought out after operation a diagnosis of pedunclated fibroid was made. However, we do not say that we would have made a correct diagnosis, but at least a tumor of questionable origin.

Operation: A right rectus incision; after freeing many adhesions from the omentum and the tumor to the peritoneum, the tumor was easily

delivered, having its chief attachment at the right ovarian site, the ovary had been destroyed either by pressure or by a probable ovarian pregnancy. Right tube encircled the anterior portion of the tumor, being losely attached to it about 5 c. m. above the place of attachment, slightly enlarged, otherwise normal; appendix firmly adhered to the tumor, having an upward course and hypertrophied; left tube much enlarged, and with the ovary firmly bound down in Douglas' cul-de-sac. Right tube and appendix separated from the tumor, and by blunt dissection the tumor was peeled out of the seat of attachment, right and left tube and appendix removed. No drainage. Patient had an uneventful recovery.

Tumor: Had a hard, bony-like consistency

throughout; weight 3½ pounds, 6½ inches by 3½ inches; shows a slit on the left of the head-portion, some hair, arms and legs folded on each other, and body flexed as if in amniotic sack.

THE RELATIVE VALUE OF RADIUM AND X-RAY IN TREATMENT OF SKIN DISEASES AND CANCER.*

By C. Augustus Simpson, M.D.
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In dealing with such a topic it is very hard not to make extravagant claims for one method, and I take this occasion to offer an apology for my possible over enthusiasm. I will endeavor to avoid this and will give only the views of the conservative physicians engaged in this line of therapy. I believe all of us will admit that some in our profession have been too optimistic over radium, but the older members present can recall almost the identical wave of enthusiasm through which X-ray passed. I can hardly believe that the X-ray ever took up the large amount of space in the newspapers that radium is now doing, but I am almost of the opinion that this agreeable feature was omitted more through the lack of aggressiveness of the older press agents as compared to the modern artist. The radium question seems to have descended on us as a perfect torrent of headlines, interviews and reports. Now that much of this radio-phobia has departed along with the lives of some of the patients let us stop to consider the cause of this sudden commotion. One not acquainted with the facts would be led to believe that the profession was just beginning to understand the action and effect of radium. The principal skin clinics of Europe have for some years been supplied with the substance in suitable form and quantity to treat dermatological diseases. There is no secret in their method of applying it, and any medical man interested in its use has ample opportunities to witness the results they obtain. In Berlin, Vienna and London I saw skin cancers and warts cured and partially cured by radium, but I am confident that any experienced dermatologist could have obtained equally as good results with arsenical and thorium paste or the acid nitrate of mercury. If he were qualified and understood the technique of giving massive doses of X-ray the same or better results could be had by an exposure lasting about one-fifth the time required by radium. Even with the older X-ray technique, which I consider dangerous and a relic of the past, many cures were produced. Some physicians, as Pusey and Pfahler, became so expert, even without the aid of the pastiles and radiochronometers, that they were able to cure the great majority of these lesions, although requiring a great many exposures to do so. Such experts were by no means common, and America can boast of very few men sufficiently interested in therapeutic work to develop a technique which could bring about such uniformly good results. Inaccurate exposures, burns and relapses caused by the efforts of men poorly instructed in the use of such a dangerous apparatus placed X-ray therapy in the discredited position it now occupies, and while Europe and England have adapted the new massive dose method with its resulting successes, America seems very slow to forget past injuries. Cancer cells become tolerant to both X-ray and radium after which future radiations simply increase and stimulate the growth rather than destroy it, so that unless one can be sure the patient is getting the ray in the proper quality and quantity, the chances of curing the condition are remote, and instead

*Revised article read before the George Washington University Medical Society, February, 1914.

of destroying the cancer as we anticipate, the weak and inaccurate ray very often quickens the growth and increases its malignancy. With the new massive doses of X-ray properly filtered through leather or aluminum one can give large and curative doses in a few sittings before any X-ray immunity has time to develop. This method has revolutionized X-ray therapy abroad, where the technique was perfected, and the results of the foreign operators in the treatment of cancers of the skin, uterus and breast are simply wonderful. Skin cancers, which were considered impossible to cure, or which required maybe one hundred exposures, are made to resolve under from one to three exposures of ten to thirty minutes each. In these cases the patient is spared this tremendous difference in time and expense, at the same time securing a cosmetic result which may be called perfect. So far as I have seen and read radium has been unable to influence any type of skin disease or cancer that could not be made to disappear with X-ray, providing the massive dose method were employed. The fact that a few rodent ulcers have been cured by it seems nothing remarkable to me. Results such as these were very common with the older methods of treatment, and why radium adherents have been able or even willing to cause such a commotion in the public mind with what I term ordinary results is beyond my imagination.

There is a tendency in classifying tumors to place all epitholial neoplasms with the criteria of malignancy together as examples of dangerous malignant tumors. Such a classification dependent mostly on the pathological structure of the growth is to be approved, but since this paper deals mostly with therapeutics it becomes necessary to rearrange the order somewhat, or at least to point out the great difference in malignancy which exists in these lesions from the standpoint of the therapeutist. The cancers that come under the observation of the dermatologist are usually examples of rodent ulcers, or basal-celled epitheliomas, superficial or deep squamous-celled epitheliomas, or metastic epitheliomas of the cutaneous surface, which are but extensions from the primary distant and oftentimes internal tumors. The cells of the latter depend on the strutcure of the parent growth, and may be columnar, cubical or squamous, all of the above are examples of malignant tumors, but varying in their malignancy to a very great degree. Indeed some of them could be better explained from a therapeutic viewpoint by referring to them as benign or relative malignant neoplasms. Therefore in order to appreciate the relative value of two methods of treatment it is necessary to compare the results obtained in the treatment of the same lesions, and for this reason it is helpful to divide malignant tumors into three classes, namely, those relatively malignant, those very malignant, and those hopeless malignant cases, which may be termed inoperable. These varying degrees of malignancy depending not alone on the pathological structure of the tumor or its duration, but oftentimes very much on the nature of the precancerous lesion and the location of the growth. For instance an epithelioma developing from a warty formation of the skin would be a rather easily healed malignant tumor, while the same structural epithelioma springing from the oesophagus would at once become a dangerous and rapidly fatal condition. Taking rodent ulcers and superficial epitheliomas as examples of the first class, it may be said that at present our methods of combatting them are almost perfect. Both are examples of malignant tumors, and if allowed to go unchecked, will in time invade the glands that drain the area and cause death in the end. These lesions, however, are so chronic and develop so slowly at first that almost any form of caustic or fulguration will destroy them. In fact, it is a common sight to see the edge of a rodent ulcer heal up spontaneously one side, while it progresses on another. Indeed, these are such common cases to be met with in the field of dermatology, and we

have so many excellent methods of curing them that one feels no hesitancy in giving the patient positive assurance of a successful outcome. As examples I need only to mention the scores of cases treated by Dr. Bulkley with thorium paste, and the three or four hundred cases which have been cured in the last few years by Dr. Sherwell of Brooklyn with acid nitrate of mercury, the active principle of the paste being sulphuric acid, while nitric acid plays the principal caustic role in the acid nitrate of mercury. Trichloracetic acid also has its advocates, but I find that its action is too superficial except in a few cases. The two former agents have convinced me of their value time and again. X-ray in massive doses is almost a specific for this class of epithelial tumors. With a properly working tube they can very often be cured with from one to three exposures of ten to fifteen minutes each.

We come next to the second class of cases, namely, those which by their structure, location and stage of development may be considered examples of very malignant tumors. The deep squamous-celled epitheliomas are usually examples of this lesion, very often situated on mucus or muco-cutaneous surfaces, and as they are intimately connected with the lymphatic system, early matastasis is always to be feared. Caustics are not to be recommended in such cases. Extensive fulguration, as recommended by Clark, would require a general anaesthetic and is suitable for only a small percentage of cases, leaving only excision, X-ray and radium to be considered. If the cancer is situated on the mucus surface, as the tongue or the muco-cutaneous surface, and is associated with true cancerous metastasis in the nearby glands, only excision of the tumor and the involved lymphatics should be considered. Neither X-ray or radium can reach effectively such a ramifying growth, and it is a waste of time to try them. In spite of all that has been said about the wonders of radium not a single case of disseminated cancer has been cured by radium alone. Not only has it failed to do this in a single instance, but it has also failed to show any more than temporary benefit in tongue, breast and uterine cancer. To quote the report of the Radium Institute of London, January 25, 1913, "Radium has no effect in preventing or delaying the appearance of metastatic deposits in adjacent glands." This same report mentions later that the great majority of uterine cancers are disseminated after the use of radium, and soon become uncontrollable. If the adjoining glands show no evidence of the disease, and do not require removal along with the tumor, I think the X-ray and radium are to be considered, providing they can be given in the proper strength, both being useless if given in small and inaccurate doses. It is a mistake to consider an enlarged gland under the mental process of the jaw in the presence of an epithelioma of the lip to be cancerous, as in many of these cases the glands are enlarged and painful because of the fact that they drain the always infected ulcer of the lip. As massive doses of X-ray in many cases constitute an ideal form of treatment, requiring no anaesthetic, no loss of time from work and no pain or discomfort, they should be the method of choice in these cases. As compared to radium and the technique employed in the Radium Institute of London, this method has two great advantages—first, the length of exposures and time required for treatment being probably one-tenth as long for X-ray (20 to 40 minutes), as for radium 3 to 60 hours. Second, there being no comparison between the two in expense. To treat cancer intelligently with radium according to the leading authorities an outlay of at least two thousand dollars is required, as a smaller amount of the substance contains too small an amount of gamma ray, is tedious and has exactly the same effect as a weak, unstable X-ray tube, stimulating the embryonic cells that make up the tumor instead of destroying them.

For the third-class cancer cases, namely, those impossible to cure, constituting that large

class of inoperable metastatic cancers involving the skin, the X-ray is still a great favorite over radium. In most instances these cases have already submitted to surgical operations which have failed, and this should make any future operative interference in these cases unjustifiable. There is not the smallest degree of excuse for a surgeon who continues to excise these recurrences again and again, as many of them do. He has had his most favorable opportunity to cure the patient and failed. He should be willing to try more pleasant and less painful means. Palliative measures are the only reasonable methods to employ here, and the quicker, more painless and less trying they are for the patient the better they suit the condition. It is the pressure, pain, discharge, ulceration, hemorrhage and odor that claim our immediate attention, and surgery most certainly does not meet the indications. In these hopeless cases the great difference in time and expense gives the X-ray a huge advantage over radium. In the case of a patient with several metastatic skin cancers it certainly seems folly to limit the use of several hundred dollars worth of radium to one location for days, while the other spots progress and spread. In a number of such cases I have been able to cause from three to a dozen of these skin deposits to disappear with two or three full erythematous doses of ten minutes each.

In breast cases where the wound granulations and healing seem to come to a standstill through infection or faulty nutrition, a few mild X-ray exposures seem to stimulate the new cells to a quicker growth and repair, causing more rapid healing. I usually limit the quantity of such an exposure to one-fourth of an erythematous dose. One of my cases which I might mention had been dressed and drained for months with no improvement up to a certain point healed so promptly after two light exposures (one-fourth of a pastile dose each) that in two weeks the drainage tubes were lost sight of and had to be exposed and removed through a fresh incision. I think if the surgeons realize how much a few postoperative X-ray exposures would do to eliminate redressings and cut short the time required for these cases to heal they would insist on every breast case having such treatment. Such radiations should be carefully measured by the pastiles so as to give accurately the small, stimulating doses and not destroy the newly formed granulations which would occur should one give a full erythematous dose. In most cases the dressings do not have to be removed in making such treatments. In breast amputations followed by oedema of the arm and tension in the scar, X-ray in the hands of Schultz and Schmidt has given quick relief. I have treated only one such case, but from a larger experience in flattening out keloids and hypertrophic scars I know such results as theirs to be possible.

In the comparative valuation of X-ray and radium for the relief and cure of the more specific dermatological diseases the advantages from all reports are still to be found with the X-ray. Taking psoriasis, acne, pruritus, chronic eczema, lichen chronica simplex, tinea tonsurans, hyperidrosis, warts, papiloma, leukaemia, pseudo-leukaemia, tuberculous sinuses, glands and ulcers as examples of the diseases for which radium has been recommended, one is immediately struck with the therapeutic similarity of the two methods. They not only influence the same class of lesions, but they do so by the same mode of action, and according to the histological and pathological studies recently done by Wickham (Archives of Roentgen Ray, April, 1914) and others, the cells of the diseased tissue undergo biological changes of a similar nature. According to a recent article in the Paris Scientific Review the rays of X-ray and radium have been photographed and have been found to be exactly alike, showing that the hard rays discharged by the X-ray tube to be photographically similar to the gamma ray given off by radium. In spite of this, reports

go to show that either through inaccurate techniques or improper screening radium often fails to cure some of the above lesions that are easily influenced by X-ray. Begrov, in the Russian Journal of Dermatology, speaks of the utter failure of radium in the treatment of lupus vulgaris, and a number of German writers express the same opinion after employing mesothorium and radium.

Very few men have reported good results from radium in leukaemia and mycosis fungoides, both examples of diseases where the X-ray exerts a tremendous influence on the internal organs without necessarily impairing of the overlying skin, a splendid example of the selective action of X-ray. Stengel and Pancost, in a recent article in the Journal A. M. A., report its use in forty cases of leukaemia and pseudo-leukaemia, concluding with the statement that X-ray is the best method at present in our hands for treating these cases. In the case of a man suffering from leukaemia, and referred to me by Dr. Randolph of this city, I was able to reduce his white cells over 30,000 per c. m. with two erythematous doses of X-ray. Aikens and Harrison, in a recent excellent article on radium, speak of their results in the treatment of tinea-tonsurans as being only fair and uncertain. Accurate epilating doses of X-ray administered in tinea cases give probably the most brilliant results to be seen in dermatology. In the past few years since the pastiles for measuring X-ray have been in use the number of cases of tinea in the schools of London and Sabourauds clinic of Paris have decreased over half. With the older methods of treatment cure was difficult and oftentimes impossible without producing permanent alopecia. The same cases are now speedily cured by giving a measured dose of ray to the diseased areas, causing a temporary fall of hair and a clearing up of the lesions at one sitting.

Much has been written about the wonderful effects of radium on angiomas. It has been my experience to know of only two of these cases that have been exposed to radium. In one case after several applications there was apparently no diminution of the redness in the opinion of the patient and a physician who examined the case. The other case after trying radium in the clinics abroad refused to bear the pain of the resulting dermatitis any longer, and returned home with the lesion almost as red and prominent as when she began treatment. I am convinced that radium will cause angiomas to disappear, but in doing so I am of the opinion that it acts in the same manner that X-ray does (which also makes them disappear), namely, making a burn of the first degree necessary before the result is obtained. The pictures in a book recently revised by a prominent English radiotherapeutist plainly show the presence of scars resulting from the radium treatment. These are practically the same sort of cures as the ones exhibited during the early days of X-ray therapy in America. At present I know of no experienced dermatologist that considers X-ray the method of choice in the treatment of these conditions. The Kromeyer lamp will supersede both of these forms of treatment in time, as it will carbon dioxide snow. It is a mistake to suppose that the only benefits to be had in radiotherapy are derived from the hardest X-rays and the gamma rays of radium.

According to one of the English authorities, Francis Johnson, who says that the various rays from a Roentgen bulb may be arranged in a curve of therapeutic value, this latter rising up to a certain degree of penetration then gradually falling again. Schultz has demonstrated that it is not always with the hardest and most penetrating rays that one gets the best results in cancer work, but that the cures depend on the absorptive capacity of the lesion, and that this absorptive capacity may be greatly accelerated by lessening the penetration of the ray (making it softer). For this reason the employment of heavy filters in the treatment of most of the superficial dermatological diseases is not indicated. This is borne

out by the negative results I have seen follow the use of the same filters when treating both simple itchy lesions of the skin and malignant tumors, such as carcinomas and sarcomas. The future developments of the X-ray tube by the physicist can little affect the usefulness of Roentgen ray in the treatment of the superficial cutaneous lesions. It may be said that if the operator is unable to get the desired results in this class of cases it may not be due by any means to the too small or too large amount of X-ray given, but will be governed very often by the hardness and penetration of the ray. I do not mean to say that there will be no further advances made in the treatment of these diseases, but I do believe that the improvement of the future will come mostly from the clinician who will teach us the highest absorptive point of each individual disease, and not from the physicists who have given us such wonderful instruments as the Lilienfeld and Coolidge tubes. Our exact knowledge of the sensitiveness of these individual lesions to X-ray is at the present time most unsatisfactory and will remain so until the X-ray men can come together, compare notes, formulate rules and systematize X-ray treatments. After this it will be possible for the physician to prescribe and administer the desired curative quality and quantity of X-ray to his patient as accurately as he prescribes and gives drugs. Those men that insist on giving X-ray without any method of dosage other than guesswork should be made to realize how much they are retarding Roentgen therapy in this country.

Returning to the comparative value of X-ray and radium in the treatment of the simple skin lesions, it seems to be pretty definitely proven from the above facts that the remarkable penetration and activity of radium will in no way enhance its value in this class of cases. To quote Sir Alfred Gould, in his discussion at the Brighton meeting of the British Medical Association: "In superficial skin conditions it matters not whether X-ray or radium is given." In the treatment of epitheliomas or deep-seated cancers the conditions are somewhat changed, but the question of radio-sensibility again asserts itself to a great degree. Here the superficial irritating rays of both X-ray and radium are unable to penetrate deeply enough to affect the neoplasm, besides they are very irritating, and filters have to be provided to prevent their injuring the overlying skin. According to Wassermann's report of last March in the Deutsche Medizinische Wochenschrift the destruction of cancer cells is not necessary to stamp out malignancy, and that radio-sensitive substances act on carcinomas by virtue of their power to disturb the function of malignant proliferation, the same cells retaining their physiological vitality. This being so it would appear that deep cancers like superficial skin epitheliomas have a definite absorptive point and until this is reached the cancer will continue to proliferate in spite of treatment. I am of the opinion that many internal cancers are incurable by either rays from the screened Coolidge tube or the most massive doses of radium, and I am also of the opinion that these negative results are due in a great measure to the fact that while with either method enough of the hardest of rays may be deposited on and in the tumor to cause it ordinarily to disappear, but being filtered through thick and dense filters, it is of such hard, non-absorbing character that it is not the best quality to be taken up by the cancer cells. If at first the same tumor could be exposed to a softer ray so as to overcome this lack of radio-sensibility it would have the effect of changing the cancer from one of low absorption to one of high absorption, and one capable of resoluting under a moderately hard-filtered ray. In other words, while we are filtering out the soft, irritating rays which injure the skin I believe we are doing away with the very quality of ray that helps to make cancer cells sensitive to the hard-filtered rays and defeating the very aims we are trying to accomplish. Schultz has shown that such a condition does take place in superficial cancers, which, if applied to deep-seated,

malignant tumors, will mean that a certain percentage of internal cancers will continue to grow and cause death in spite of quantities of hard X-rays and gamma rays unheard of at the present time.

This may be answered by the advocates of radium with the statement that buried tubes of radium in close contact with the tumor will overcome this difficulty. It will in a measure, but with such powerful sources of radiation in the center of a tumor it is quite obvious that an enormous amount of cell destruction or cell disturbance (Wassermann) takes place in the growth, while the outlying cells may be only paralyzed for the time being. The literature on radium contains numerous instances of not only destruction of cancer cells, but occasionally massive destruction of healthy cells as well. These radium-damaged, non-malignant cells must be tremendously handicaped in the presence of any few remaining cancer cells, and instead of having some definite powers to resist the encroachment of the malignant cells, they would really become a focus of lowered resistance. Another and frequently forgotten reason why these powerful doses of radium rays will not always be the safer and better plan of treatment, and that is the indirect effect on the host. With a powerful irritant applied in such massive doses it is very reasonable to believe that the deep connective tissue cells or the epithelial cells of some vital organ may become irreparably damaged or induced to secrete some toxic substance in the tissues which in turn will produce an intense inflammatory reaction and exudation to counteract the poison. Such a serious internal disturbance in a patient already weakened by pain and intoxication may be sufficient to close the scene. Schmidt of Germany has already reported a number of these obscure, internal, late forming ulcerations resulting from the cross-fire method of treatment, and it is reasonable to expect them in America in the near future. With the new Coolidge tube, probably the most dangerous instrument ever placed in the hands of the profession, extreme care must be exercised to insure correct dosage. Unless the operator uses either the pastiles or the Kienboeck units for determining the amount of X-ray given the patient severe and fatal burns may result in a very short time. The penetration is always under the direct control of the operator and can be regulated from the softest current to a hardness that will deliver an erythematous dose (Hampson) through three m.m. of aluminum and one inch of fresh beef in a few minutes. Such uncanny results are remarkable and were not dreamed of a few months ago. The makers and agents should use extreme care in placing such tubes, else X-ray therapy of the future will play a more prominent part in court procedures than it has in the past. In this new Coolidge tube the operator has at hand the means whereby he can deliver the hardest X-ray (similar to the gamma rays of radium) through very thick aluminum filters, which will penetrate and influence cancer cells several inches below the body surfaces. With practically an unlimited amount of these filtered, deeply penetrating rays which physicists, histologists and pathologists insist is similar to the gamma rays of radium, there seems no reason why the X-ray of today might not be as effective for not only the superficial cancers, but even for the deep cancers as very large quantities of radium. The expense of radium will always limit its use to the wealthiest of physicians and endowed institutions, and it is to be hoped that this new invention, the Coolidge tube, the product of American genius, will do away forever with the radium question, which has even inserted its craze into the halls of our Congress.

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BONE REGENERATION—REPORT OF A CASE.

By Robert B. Slocum, M.D.,
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The patient is a colored boy, 19 years old, employed by the Clyde Steamship Company as stevedore. On the first of May, 1914, he was struck by a beam in such a way as to crush the left tibia in its lower third, but entirely above the ankle joint. He was taken to the hospital and seen at once. Examination showed the fibula to be intact. The soft parts over the lower third of the anterior surface of the tibia were torn off and about two inches of the tibia itself were practically punched out. There probably was a bridge of periosteum and perhaps a few adherent particles of cortical bone along the edge of the interosseus membrane. Otherwise there was a complete gap in the bone for about two inches. The bleeding from the upper fragment was copious, showing that the nutrient artery was not injured.

There seemed to be a choice of three methods of treatment: (1) The old way of making the ends of the bone square and then resecting the fibula enough to allow the ends to come together. This would have meant the shortening of the leg more than two inches, as the ends were shattered and pointed. There would still have been the probability of an osteomyelitis. (2) To get a graft, e. g., from the fibula of the other leg and use Murphy's method. (3) To allow the gap to fill with blood-clot and see if bone would reform to bridge the gap. The experimental work of Haas (Surg., Gyne. & Obs., VII, p. 164) had shown that bone would fill in such a gap where there was a sheath of periosteum, the sheath forming a gutter to be filled with blood-clot. One of his conclusions, however, was "that regeneration of bone was never found excepting where periosteum was present." In this case there was no periosteum except a possible narrow ridge along the border of the interosseus membrane.

It was decided to try the experiment without graft and without shortening. A gutter was formed as best we could with fascia and allowed to fill with blood. Temporary splints were applied. A few days later it was necessary to make a stab wound on the under side of the leg for drainage; this was done with cocaine. The swelling then subsided and plaster casts were used, leaving "windows" for drainage.

At the end of the fifteenth week there is complete bony union so that the patient can walk. There is still a slight sinus to the bone which may make a second operation necessary for osteomyelitis. But even if that is the case the chances of the same condition would have been as great if either of the other methods had been followed. (Perhaps this is not true in the old method of resecting the fibula, but a second operation is a small price to pay for two inches of leg.)

This accident happened on May 1, 1914; in the May number of Surgery, Gynocology and Obstetrics is an article by E. J. Lewis. His experimental results are in harmony with this. His third conclusion is "That bones may unite after fracture or a space fill in after resection without the aid of any periosteal or bony ridge, and that transplanted fascia may be made to take up the nutritional and limiting functions of the periosteum."

SKIN CANCERS.*

By J. L. Kirby-Smith, M.D.,
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Owing to the short time allowed for the reading of a paper before the society, it will be necessary to omit the consideration of carcinoma and sarcoma cutis, and to cover rather superficially the subject of this paper, epitheliomata.

Skin cancers are classified into three distinct types or groups for purposes of diagnosis or treatment, according to their gross appearance, or tendency to develop, as follows: Superficial epithelioma, which is characterized by the presence of ulceration of the skin without any prominent tumor. The rodent ulcer is illustrative of this type. The second form of skin cancer is the papillomatous, or papillary. This resembles the rodent ulcer only in its superficial situation, and differing in its papillomatous appearance. The third of deep-seated type of epithelioma is more active in its course and is usually spoken of as cutaneous cancer.

*Read before the Duval County Medical Society, Jacksonville, Fla.

Next in order will be a brief description of these different types of epitheliomata, beginning first with the rodent ulcer. The superficial epithelioma or the rodent ulcer first appears in the form of one or more small, hard, shining granulations the size of a pin head or slightly larger, and of a pale red color. These coalesce to form an indurated patch, which eventually ulcerates either spontaneously or after some traumatism, and is covered with a crust formed of dried blood. After a while, sometimes several years, the primary lesion extends by peripheral development of fresh granulations. The lesion most often commences at the inner angle of the eye, on the nose or forehead; more rarely on other parts of the face or body. The ulcer is superficial, round or irregular, with sharply cut indurated borders, and a reddish brown granular base secreting a viscid liquid. There is often a cicatrix in the center of the ulcer, which then forms a peripheral furrow surrounding the cicatrix. Sometimes new granulations form at the border of the ulceration, and the lesion heals spontaneously, this after perhaps fifteen or twenty years, but in most cases the lesion gradually extends, and in severe cases may destroy large portions of the face, including muscles and bone, producing a vast cavity which extends to the pharynx. The ulceration is usually accompanied by itching, but pain may be very severe in extensive cases. Whatever the duration or extent of the disease, the lymphatics are hardly ever affected, and there is no cachexia or visceral metastasis. Recurrences after operation are common. Rodent ulcers may be easily taken for lupus vulgaris or tertiary syphilitic ulcerations.

The second type of epitheliomata is the papillary. This form of skin cancer is very common. When first noticed by the physician the lesion resembles a simple hypertrophy of the papillae of the skin, an ordinary papillomata. Later on, either by repeated irritations or spontaneously, the simple looking lesion grows and becomes indurated at the base, and bleeds easily. It often undergoes exuberant growth and develops vegetations, and it sometimes becomes covered with black crusts or horny formations. This form of epithelioma contrary to the rodent ulcer type may occur on any part of the face or body, and frequently develops on the genital organs, especially the glans nenis or the prepuse. After a time the growth may increase in size and extent, and the neighboring lymphatics become involved. Often after a variable duration the papillary epitheliomas form an ulcer with punched-out, everted, indurated borders, the characterized "rolled pearly-like borders." In a few months or years, sometimes much more rapidly, the ulcer causes destruction of the subjacent tissues, or in rare cases the whole growth is eliminated by necrosis. Sometimes cicatrixation takes place at one point, while the growth extends in another direction. As a rule often after a few months or years corresponding lymphatic glands become enlarged, and occasionally visceral metastases occur.

Deep-seated Epithelioma.—This is rather an uncommon form when we consider only those epitheliomata which develop from the glandular structure of the skin. This type forms a tumor of rapid growth. Eventually ulceration takes pace through the superficial skin over the tumor.

Pathology.—The superficial epithelioma has in its structure the character of pavement celled, lobular epithelium, and the deep-seated type has those of the tubular epithelium. In the first the growth arises from the deep layers of the epidermis, and in the later from the sebaceous glands, hair follicles, or sweat glands. (Cornil & Ranvier.)

Diagnosis.—In the diagnosis of epitheliomas we have to consider, as I have already mentioned, tuberculosis of the skin (lupus vulgaris), and tertiary syphilitic ulcerations. In the former, lupus vulgaris, we have this difference in the appearance of the lesion: There are small yellow tubercules, or "apple jelly nodules," situated around the ulceration. Then lupus vulgaris does not bleed easily, and there is less induration in the near tissues. The ulcerating syphiloderm is characterized by its slow evolution and the presence of other signs

of syphilis; however, the vegetating or papillary type of epithelioma can be easily taken for the vegetating form of lupus or syphilis. In the early stage of development a papillary epithelioma or the penis may be mistaken for a chancre.

Etiology.—Epitheliomas are generally observed in those past forty years of age, though it is not uncommon to see them in those as young as twenty-five or thirty. They are more often observed in men than women. The lesions may be single or multiple. The influence of heredity is probable. Frequent local irritation is the most potent cause of the development of epithelioma. Traumatism of a pre-existing mole, wart, or cyst is frequently the starting point of an epithelioma. The use of a smoking pipe with a short stem produces the "pipe smoker's cancer of the lip." It is not uncommon to see an epithelioma develop from a naevus, or in a chronic varicose ulcer, or a patch of psoriasis. The sebaceous acne of old people is only an epithelioma developed on a senile seborrhoic skin. Underneath the adherent fatty crust is formed a characteristic epitheliomatous patch which bleeds when the crusts are detached. Epitheliomas may also develop on senile seborrhoeic warts, or they may also develop on the scars of old ulcers, such as those of lupus vulgaris, or tertiary syphiloderms, or from scars of old burns. The transformation from tongue leucoplakia into an epithelioma is well known. The exact nature of epithelioma is still obscure in spite of numerous researches.

Prognosis.—In the rodent ulcer type the prognosis is not so grave as in some of the other forms of skin cancers. The papillary and deep-seated types recur quite often even after complete excision, though the prognosis for a cure in any type of skin cancer depends on the location of the lesion and the extent of the envolvement of tissue, and the method of treatment used. Excision in most cases shows a larger percentage of recurrences than from the use of thorough curettement and cauterization, or properly used pastes, X-ray, or radium.

Treatment.—Prophylactic measures are most important. The early excision or destruction of all warts, moles, naevi, or other benign-looking tumor formations, especially where the growth is so located that it is liable to irritation or traumatism. In the consideration of the various methods of treatment of epithelioma mention will be made of the different procedures, but the technique of using these different methods of treatment will necessarily have to be omitted in a paper of this character. Cauterization, either thermal or galvano-cautery, is frequently used for the destruction of skin cancers, but it is not found to be generally satisfactory. Caustics, the various pastes, arsenical combinations, or chloride of zinc combinations, in such well known formulae as Marsden's or Vienna paste, have their advocates. Other caustics are at times better applied, caustic potash, acid nitrate of mercury, chromic acid. Of late years the use of carbon dioxide snow has been introduced. This is an admirable method for the treatment of small superficial epitheliomas. Curettement either alone or with the use of caustics afterwards, is no doubt the most popular, and no doubt one of the most certain methods used for the cure of epithelioma, especially curettement which is followed immediately by thorough cauterization, either chemical or thermal. by so doing any epitheliomatous cells that are not removed by the curette are destroyed by the active caustic. X-ray and radium properly used in the hands of skilled operators produce good results, and are probably the best measures we have at the present day for the cure of skin cancers. Owing to the limited supply of radium, especially in this country, the use of this measure is necessarily restricted to a very few of the medical profession, as the effect of radium exposures is very near identical to that of the X-ray, the gamma rays being the essential rays for the treatment of cancers. The other rays, known as the alpha and beta rays, are filtered out in the use of radium. With our modern use of the X-ray a similar state exists. We are now able to use the X-ray with precision. We not only

have devices for filtering the harmful rays, but we can measure the dosage with accuracy. A few years ago Beniost gave us his radiochromometer. Other methods of regulating the dosage of X-ray treatment are Villard's pastels and Sabourauds-Noire' reaction pastels. Fulguration has numerous advocates, but this method of treating skin cancer has not received the general attention of the profession, but properly used the fulguration method produces brilliant results.

THE CYSTOSCOPE: ITS USE AND ABUSE.

By Loyd Thompson, Ph.B., M.D.,
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Probably no other instrument in the whole armamentarium of the modern physician, surely none in that of the urologist, has a broader field of usefulness than the cystoscope. Yet in the hands of one not skilled in its technique it may become not only useless, but a source of great pain and even danger to the patient. This latter statement was forcibly brought home to the writer, when, some years ago while suffering from a renal calculus, an attempt at cystoscopy was made by a very competent general surgeon. This resulted in failure owing to the excruciating pain, and the writer suffered with hematuria and painful urination for days afterward. Some months later the calculus passed following dilatation and injection of the ureter through the cystoscope in the hands of one of America's leading exponents of its use.

The modern cystoscope, with its small caliber, its smooth, round surface, its cold light and its irrigating attachments, while a direct descendant of the one which Nitze produced in 1878, is a far cry from that heavy, cumbersome instrument, with its large bore and hot light.

There are a number of instruments, both foreign and domestic, on the market today, each having its exponents, and each laying claim to superiority in one or more particular respects. The writer feels that to a great extent, at least, the claims to superiority for various cystoscopes by different cystoscopists are due not so much to the superiority of the instruments as to the fact that they are the ones with which the individual workers have become most familiar.

The uses to which the cystoscope may be put are broadly divided into diagnostic and therapeutic.

As a diagnostic agent the cystoscope is invaluable in diseased conditions of the bladder. By its use a clear picture of the interior of this viscus may be obtained, and pathological conditions diagnosticated with ease and certainty. Probably the most important abnormal bladder condition which the cystoscope reveals is intravesicular tumors. These new growths may be either benign or malignant, and while it is usually not possible to distinguish them with the cystoscope alone, the age of the patient, his general condition, and other clinical evidence should be borne in mind. A portion of the tumor can usually be removed through the cystoscope, and should be done, when possible, for laboratory diagnosis.

The various inflammatory conditions of the bladder can be readily differentiated with the cystoscope. While acute cystitis, especially gonorrheal, is usually considered a contra-indication of cystoscopy, it is often desirable to determine whether or not this condition is localized. Chronic inflammation of the bladder is revealed by a typical picture of distended vessels, ecchymosis and sometimes ulcers. In tubercular cystitis the usual finding is an area of severe inflammation which shows granulations and ecchymosis. Sometimes small grayish tubercles are seen scattered here and there over the surface of the lining membrane.

Vesicular calculus is a comparatively frequent cystoscopic finding. Of course, this condition may be diagnosticated with more or less certainty in most cases from the clinical his-

tory, by intravesical palpation, with the Thompson stone searcher, and by the X-ray, but in certain cases, such as encysted calculus, diverticula in which the stone is lodged, etc., these methods fail, and the cystoscope comes to the physician's aid.

Enlarged prostate, while usually revealed by rectal palpation, may be better appreciated by means of the cystoscope. Other rarer bladder conditions which are revealed only by the cystoscope, or by exploratory incision, which may be mentioned, are varicose veins of the bladder wall, diverticula of the bladder, abnormalities of the position and contour of the ureteral openings, and congenital cystic protrusions of the ureteral wall.

Useful as is the cystoscope in the diagnosis of pathological bladder conditions, its sphere of usefulness is greater in diagnosing lesions of the upper urinary tract, the ureters and kidneys. While considerable information may be gained concerning pathological conditions of the ureters and kidneys by mere inspection through the cystoscope, more can usually be learned by ureteral catheterization.

By inspection may be determined whether or not urine is flowing from both ureters, and the source of blood or pus, that is, whether or not it is coming from either ureter.

By ureteral catheterization may be determined the nature of pus which may be coming from the opening, the location of the lesion and the nature of the infecting organism.

The diagnosis of renal, and especially ureteral calculi, is very materially aided by ureteral catheterization. First, by determining from which ureter, if either, blood is being passed; second, by the catheter meeting an obstruction in the ureter, and third, by having a radiograph made with a suitable catheter in the ureter. Not infrequently after this procedure supposed ureteral calcuti are found to be phleboliths, or some foreign substance at considerable distance from the ureter.

Tuberculosis of the kidney may be determined by finding tubercle bacilli by microscopical examination of urine obtained by ureteral catheterization, or by the innoculation of a guinea pig with the same. This is of the utmost importance, as often only one kidney is involved, and it may be removed, restoring the patient to health.

In the diagnosis of hydronephrosis the use of the uretheral catheter is of the utmost importance. In this condition there is usually no difficulty met with in passing the catheter until the uretero-pelvic juncture is reached, when there is some resistance. Before the catheter has reached the pelvis the flow of urine is slight or absent, but in hydronephrosis after the catheter has passed into the pelvis there is a steady drip.

Probably the most important role of ureteral catheterization is that played in connection with renal functioning tests, the phloridzin, the phenol-sulphone-phthalene, and the estimation of urea. By these tests may be determined with great accuracy the actual functionating ability of each kidney.

In the realm of treatment of urinary diseases the cystoscope ranks second only to its diagnostic importance. With such instruments as the Brown and the Bransford Lewis operating cystoscopes many diseased conditions, not only of the badder, but of the kidneys and ureters as well, may be treated most successfully.

Certain types of vesicular tumors may receive treatment through the cystoscope, either by removal by cutting with the small scissors, provided with some operating cystoscopes, or a wire loop, or by the application of the high frequency current.

Vesicular calculi, if of small size, may be removed through the cystoscope, or even if of considerable dimensions, may be removed after first crushing with a lithotrite.

One of the most brilliant results which may be obtained with the cystoscope is the removal of ureteral calculi. If these are within two or two and one-half inches of the ureteral orifice they may sometimes be removed by the use of small flexible forceps. The first surgeon to successfully perform this operation was Dr. Bransford Lewis by the use of his operating cystoscope. If the calculus is too high up to

be reached with the forceps it will often pass by dilating the lower end of the ureter and injecting some bland ointment, such as liquid albolene, through a ureteral catheter. Or quite frequently its descent may be facilitated by merely catheterizing the ureter.

In chronic catarrhal inflammation of the pelvis of the kidney much good may often be obtained by the injection of the pelvis with a weak antiseptic solution, such as 5 per cent argyrol, through a ureteral catheter. This treatment is not indicated in very severe pyogenic infections where surgical intervention is demanded.

In temporary blocking of the urine due to twisted ureter or floating kidney it may be expedient to resort to ureteral catheterization to relieve the condition.

Very often in certain abdominal and pelvic operations the ureteral catheter in place may be of the greatest service as a landmark.

As indicated above, cystoscopy in the hands of an amateur may become worse than useless, and naturally even in the hands of an expert it has its contraindications and limitations.

In acute inflammatory conditions of the urethra the introduction of the cystoscope might be attended with dire results by extending the infection to the bladder, the ureters, or even the kidneys.

Of course cystoscopy is dependent upon the size of the urethra through which the cystoscope must pass, and is further limited by the caliber of the instrument. The size of the different prominent cystoscopes varies from 18 to 26 French. Frequently in certain stricture cases where it is desirable to perform cystoscopy it is necessary to first dilate the urethra.

To sum up, the modern cystoscope in the hands of one skilled in its use has become a means of correctly diagnosing nearly all pathological bladder conditions, including abnormalities in contour, tumors, inflammations, and calculi; urethral conditions, such as calculi, inflammations, twists and kinks; many kidney conditions, as lessened functionating powers, calculi, hydronephrosis and pyonephrosis, tuberculosis, etc.; and in the realm of therapeutics it is useful in the removal of vesicular tumors and calculi from all portions of the urinary tract, in the treatment of chronic catarrhal inflammation of the renal pelvis, and for furnishing a landmark in certain abdominal and pelvic operations.

RENAL HEMATURIAS AS INFLUENCED BY URETERAL CATHETERIZATION.

By Gideon Timberlake, M.D.,
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These cases, three in number, are of interest particularly, because of their individuality, there being no satisfactory explanation for cause and result.

If we consider hematuria and its causes, there is as a rule, some material basis from which to draw conclusions, with the exception of such cases as are referred to in this class, namely, "Idiopathic" or "Essential" hematuria.

In order to permit this peculiar phenomenon to stand out in a conspicuous way, it may be well to call attention to some of the more common hematurias, with some of their underlying causes. For example: Injuries to any portion of the urological tract, foreign bodies—such as stone in the kidney, ureter, bladder prostate of urethra. Neoplasms, benign or malignant, in this tract. Tubercular infections from the kidneys down, inclusive. Other suppurative lesions of the kidneys, etc. Acute or chronic nephritides. Ulcers of the bladder, cystitis and trigonitis. Terminal hematurias as found in cystitis colli and acute posterior urethritis, especially when there is an acute verumontanitis. As an early symptom in benign prostatic hypertrophy, this being a late sign in cancer of the prostate. Hematurias found in acute general infections, either of bacterial or protozooan origin. Those

following the ingestion of certain drugs. Then, a condition known as "frost hematuria," or hemoglobinuria. (One of such cases the writer has seen.)

Should we go further into the details of this interesting subject, the time and volume of writing would defeat the purpose of this report.

Case 1.—E. G. S.; male; married; age 38; farmer. June 6, 1909.

Complaint: "Passing blood with the water."

Family History: Negative.

Past History: Diseases of childhood, malaria and typhoid. Venereal diseases limited to one case of tripper; this was of short duration. Denies the use of alcohol, or having had any injuries.

Present Illness: Claims that he had had pain in the left kidney region previous to the appearance of blood. Immediately incident to the passage of blood there was a very intense pain in this region. The blood has continued since, but the pains have become negligible. Has had no chills, fevers or sweats, and very little loss of weight.

Present Examination: Genitalia normal. No discharge from the meatus. No abnormalities found in the scrotum, or prominent glands in the groin. The urine is passed freely in three glasses, all of which are uniformly dark red in color. Microscopically, numerous red cells are seen, and a few leucocytes. The prostate per rectum is about normal in size and consistency, not very tender, but slightly irregular in outline. The prostatic secretion shows a preponderance of lecithin bodies over other elements. A few white cells are seen.

Cystoscopy: On June 7 an examination of the bladder was made. The observations revealed a normal bladder wall. No neoplasms or foreign bodies seen. There was seen what seemed to be a very bloody stream of urine coming from the left ureter. The kidneys seemed to functionate normally.

On the following morning the ureters were catheterized and the right ureter put out what seemed to be normal urine, while from the left blood showed in quantity. These specimens were examined for abnormal elements, but aside from the blood from the left side none were to be found.

The patient was seen the following day about noon, and he complained that he had had an extremely uncomfortable night. At midnight he had the most excruciating pain in the left kidney region. A physician was called, who gave him a hypodermic injection and soon the pain was relieved and the patient fell asleep. He awoke about ten o'clock in the morning, and, while weak, felt fairly comfortable. When the water was passed after rising, he was surprised to find the urine almost clear. When seen about noon there was no macroscopic evidence of blood, though a comparatively small amount of red cells were to be seen microscopically.

We were disappointed in not having had the chance to work this case up further, as he left on the following day, and did not return. A letter from him on July 11, 1909, informs us that until the day before he had seen no blood and had had no discomforts. The last attack was ushered in with pains over both kidneys, after which he noticed the recurrence of blood. He was written to and urged to return for further observation and study, but nothing has been heard from him since.

Case 2.—A. H. P.; male; single; dentist; age 34. April 15, 1912.

Complaint: "Bloody urine."

Family History: Negative.

Past History: Has had children's diseases, appendicitis and septicaemia. Had suspected phthisis, but had had no symptoms other than a slight cough. No evening temperatures, night sweats or loss of weight. No history of venereal diseases. Denies use of alcohol. No injuries.

Present illness: Had had bleeding from the urinary tract for the last nine months, during which time there was a cessation for two weeks. There has been a slight loss of weight. No urgency, frequency, hesitancy or dribbling of urine. No pain or burning felt during or after the act. After the cessation the bleeding recurred and has continued to the present date. Complained of pain over the right kidney, but this was not constant. States that there have been no clots passed, but rather finds a homogeneous mixture of blood with the urine. The color has been constantly a dark red.

Present Examination: Genitalia normal. No discharge from the meatus. Nothing abnormal in scrotum. The urine, which is passed with ease, is a dark cherry red color and of equal intensity in three glasses. Reaction is acid, and specific gravity 1025. Shows a heavy ring of albumen with heat. No sugar. Microscopic examination shows numerous red cells.

Cystoscopy: No residual urine. Bladder capacity normal. Catheter and cystoscope pass

with ease. Bladder normal; no neoplasms or foreign bodies. The right ureter is ejecting apparently normal urine. The left is putting out what seems to be a mixture of blood and urine. Kidneys functionating normally.

May 6, 1912, ureters catheterized. Blood coming from the left ureter, none coming from the right side.

The catheterized specimens were carefully examined for bacteria, casts, or any abnormal elements, none of which were found save the red blood cells and an occasional white cell. Cultures made on ordinary media were negative. Six milligrams of phenol-sulphone-phthalein was given intravenously. There was appearance from the left side in five minutes and from the right side in eight minutes. The reading with the Hellige colorimeter was as follows:

Left kidney, 1st 15m.	13%	Right kidney..	7%
Left kidney, 2nd 15m.	12%	Right kidney..	8%
	25%		15%

On the following day there was no macroscopic blood to be detected, there being apparently a complete cessation of bleeding.

November 21, 1913, eighteen months later, the patient returns, complaining of recurrence of blood, which has existed for a week. He states that the reappearance was noticed after a day of the most strenuous and tiresome work. The general symptoms differing in no way from the first attack. On the following day the ureters were catheterized and the picture was but little different from the first one save in the elimination of the 'phthalein. Blood was seen coming from the left ureter, and apparently normal urine from the opposite side. Another intravenous injection of 'phthalein was given, and it appeared in three minutes from the right kidney and four minutes from the left. The reading was as follows:

Left kidney, 1st 15m.	11%	Right kidney..	15%
Left kidney, 2nd 15m.	6%	Right kidney..	8%
	17%		23%

The urea was not estimated in the fifteen minute specimens, but for twenty-four hours the total output was 29.5 grams. The microscopic and negative bacteriological findings differed in no way from the first.

On the day following the catheterization there was a complete arrest of bleeding from the kidney, and the patient was very comfortable. This has lasted up to the present date, which is June 15, 1914.

Case 3.—A. McC.; male; married; farmer; age 47. November 8, 1911.

Complaint: "Bladder trouble."

Family History: Father died of a growth in the side. Mother, brother and three sisters died of pulmonary phthisis. No history of cancer.

Past History: Had children's diseases. No general infections. No venereal diseases. Denies alcohol or tobacco.

Present Illness: States that his attack of passing blood came on very suddenly two years ago. The blood having appeared after he had carried a heavy parcel up a steep hill. At this time there was experienced a pain in the left kidney region, which soon made a shift to the right side. This pain remained for a considerable time. While the pain was not severe, it was definite and uncomfortable. All during this period there was blood being passed with the urine, and there was no intermission. There were no large clots, and at no time was there an acute retention. No urgency, frequency, hesitancy, dribbling or painful urination. Has had no chills, fevers or sweats. Has noticed a continued loss of weight. He applied to physicians for examinations and various conclusions were arrived at, no two apparently alike. One cystoscopist thought there was a tuberculosis of the bladder, while another contended that there was a ruptured blood vessel in the bladder.

Present Examination: A very emaciated white man, weighing about a hundred pounds; pale and anemic looking. Has the appearance of one who has lost a lot of blood. Mucous membranes are bluish white in color. Heart, lungs, liver and spleen negative. No palpable tumor masses in the kidney regions. No oedema. Genitalia normal. Nothing abnormal in the scrotum. The urine in three glasses is cloudy and of a cherry red color. Albumen shows with heat. Microscopically, practically nothing abnormal but the red cells. The prostate per rectum is nearly normal in size, consistency and contour. Not tender to pressure. Seminal vesicles not involved.

Cystoscopy: Catheter passes with ease. No residual, and bladder capacity good. Bladder, in appearance, is normal. No neoplasms or foreign bodies. No ulcers. The ureters are normal in appearance and position. Blood is seen pouring from the right ureter, and the mixture with urine homogenous. Six milligrams of 'phthalein were given intramuscularly, and there was an appearance in twelve minutes. The output for the first

hour was 55 per cent, and for the second hour 20 per cent, showing a total of 70 per cent for two hours.

November 9, 1911, the ureters were catheterized with ease. Blood soon made its appearance from the right side, while the left side put out what seemed to be clear urine. The specimen from the right showed nothing microscopically but blood. The specimen from the left side showed a few epithelial cells, a few granular casts, and an occasional red blood cell. These probably came as a result of trauma. No bacteria found in either specimen. Intravenous 'phthalein appeared from either side in five minutes. The reading was as follows:

Left kidney, 1st 15m.	13%	Right kidney..	6%
Left kidney, 2nd 15m.	9%	Right kidney..	5%
	22%		11%

Leakage read 10%.

The right kidney pelvis was injected with about ten cubic centimeters of adrenalin chloride solution, in strength of 1-5000, normal salt solution being used as the diluent. He was then advised to go home and rest and report on the following day, all of which he did. Upon his return the following day he claimed to have passed a very uncomfortable night, and, further, he was going home and die there, as there seemed no hope for him.

On this visit the amount of blood passed seemed about the same in quantity as shown in previous specimens. Being unable to persuade him to submit to further examinations, he was advised to return to his home and there consult his surgeon, who would advise him as to the propriety of operating upon the kidney from which the blood was passing.

There was no cessation of blood from this date up to the 4th of December, 1911, when a nephrectomy was performed by Dr. Hupp, of Wheeling, W. Va., under general anaesthesia. The kidney was normal in size and appearance, save for its having been very pale. There was nothing about the gross specimen to suggest malignancy, but there was seen near the apex of one of the calices a small opening about the size of a small pin's head, which looked like a thin-walled, eroded blood vessel. The specimen was shipped here but was misplaced upon delivery and further examination was thus denied.

On the day following the operation catheterization and cleansing of the bladder was performed and there was practically no macroscopic blood to be found. Owing to the exceedingly low resistance of the patient incident to the operation, the post-operative treatment was most vigorous.

On the seventh day there was a urinary output of 870 c.c. Specific gravity 1021. A faint trace of albumen. Indican present. Total solids, 42.5 grams. Urea, 18.2 grams. No sugar. Amorphous urates.

Microscopic examination showed a few hyaline and granular casts, also a few epithelial cells and leucocytes.

The recovery was without event. On February 14, 1914, the patient had gained forty pounds, was feeling perfectly well and attending to his duties at daily work on the farm.

It may be noticed, in the first two cases, the cessation of renal hemorrhage after ureteral catheterization, no drug styptics having been employed. The first case carries a blood-free urine for a little more than a month, while the second patient has experienced a freedom from blood for eighteen months after the first ureteral catheterization, and seven months since the second (to this date). The bacterial findings in both cases have been negative.

The third case described here is shown to have suffered from a definite renal hemorrhage, which responded neither to ureteral catheterization nor the introduction of an intensely acting styptic, the only resort for control being nephrectomy.

It is of interest to note that the pain experienced in the last two of these cases was first felt on the sides opposite from the one affected; but incident to, or at the beginning of hematuria, the pain settled in some mild degree over the area affected.

A very interesting feature of the second case is the shifting of the percentages of dye output from the kidneys. In the first instance the bleeding kidney put out more of the 'phthalein than the unaffected side, while at the last examination the good side had apparently assumed the responsibility of its weaker mate.

Cases have been reported by various observers, where this inexplicable renal hemorrhage has been relieved by the injection of styptics to the renal pelvis, while Hagner of Wash-

ington has reported two cases in which his experiences are similar to these mentioned here. While there is no claim for a permanent cure to be based upon this experience, it is at least reasonable to believe that, had many of the cases which responded to the use of styptics been alone catheterized, the results would have been similar. While this is purely problematical, there is some reason shown in the comparison of these cases reported to warrant the foregone conclusion.

These cases are reported with the hope of having some observers offer suggestions by which we may better understand the etiology of this bleeding, and also a probable explanation of the cessation of hemorrhage following this simple procedure.

330 *N. Charles Street.*

THE TREATMENT OF SPECIFIC LEUCORRHOEA.

By Ralph Duffy, A.B., M.D.,
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Leucorrhoea may be defined as a purulent, or muco-purulent, discharge from the vulva. Such a discharge may have for its cause some gross pathological lesion of the genitalia, such as carcinoma of the cervix, or corpus uteri, or uterine polyps, or sub-mucous myomata; also fistulae, a badly ulcerated cervix, etc.

It is not of this class, however, that I wish to speak. This paper has to deal with that large class of leucorrhoeas without gross demonstrable lesion in the lower genital tract, or corpus uteri. I will call this class "specific leucorrhoea."

Specific leucorrhoea is caused by various conditions. Infections in the puerperium, abortions, malnutrition, loss of tone of the pelvic organs following child birth may cause it. The great cause is, however, the gonococcus.

*Read before the Hillsboro County Medical Society, May 26, 1914, at Tampa, Fla.

ORIGIN OF LEUCORRHOEA.

It has been assumed that the whole genital tract was involved in leucorrhoea. Some recent investigators, however, combat this view. Curtis[1] of Chicago took cultures from the body of the uterus in twelve cases of leucorrhoea. He found the cultures sterile in ten cases. The two cases which showed growth had each a local lesion—one a cancer of the cervix, and the other an infected uterine polyp. He has also taken cultures from numerous cases after hysterectomy, and found the uterine cavity sterile. He further states, "In over twenty patients the cervix was exposed to view, and observed for evidence of leucorrhoeal discharge. In many the cervix was dilated to insure free drainage during the period of observation, but in none was there evidence of anything more than a mucous discharge from the uterus."

Curtis summarizes as follows: "These results, namely the absence of bacteria in uterine scrapings from leucorrhoeal cases, the negative results of cultures from the endometrium, and the failure of persistent attempts to discover a leucorrhoeal discharge from the uterus indicate that purulent discharges are formed in the lower genital tract, and rarely consist of bacteria-laden material from the uterine cavity."

Most of us will not be willing to admit the conclusions of Curtis that the cervix is not involved in leucorrhoea. Most of us have seen purulent discharges from the cervix. Norris[2] states that the cervix is involved in 95 per cent of the cases of chronic gonorrhoea. I believe, however, that the uterine cavity is not involved in leucorrhoea. This has an important bearing on the question of curettage in these cases.

BACTERIOLOGY OF LEUCORRHOEA.

The bacteriology of leucorrhoea has never been fully investigated. Curtis in the above mentioned article finds that anaerobic bacilli and cocci are predominant. Aerobic diplococci are also generally present, which may

develop on cultures into streptococci. A moderate number of staphylococci are also present in the discharge. Leucorrhoeal discharge he finds generally harmless when injected into the peritoneal cavity of rabbits and guinea pigs.

Of the gonococcus he says: "Gonorrhoeal infection is the exciting cause of leucorrhoea in women who have never been pregnant. After creating conditions favorable for the development of other organisms which are accompanied by profuse purulent discharge, in an astonishingly large percentage of cases, the gonococcus so completely disappears that it is not demonstrable by any means at our command. This suggests that the chief part played by the gonococcus in chronic leucorrhoea consists in preparing the soil for the leucorrhoea producing anaerobic organisms."

It is well known that the gonococcus eludes detection in chronic cases. Spencer[3] considers the culture test alone reliable in differentiating the gonococcus from other cocci, particularly the micrococcus catarrhalis. Bumm has isolated four different Gram—negative diplococci, closely resembling the gonococcus from leucorrhoeal discharge.

The important point in the findings of Curtis is the low toxicity of the leucorrhoeal exudate. Haemolytic streptococci were not found.

TREATMENT OF LEUCORRHOEA.

The treatment of leucorrhoea varies, for the acute and chronic stages. For the acute stage with pain and fever all authorities agree that rest in bed, liquid diet, and hot bland or mildly antiseptic douches are the best treatment.

The best treatment for the chronic stage is much disputed. The curet is much used but not so much as formerly. It will never cure leucorrhoea, and is probably often harmful. The same may be said of the ordinary antiseptic douches. The use of the tampon is still advocated by some writers. Spencer[3] uses tampons medicated with argyrol, ichthyol, protargol, or formaldahyde, each in combination with glycerine. Erosions he touches with the silver nitrate pencil. His treatment of the cervix is as follows: He wipes away the cervical mucus plug and irrigates the cervical canal gently with one-quarter per cent solution of iodine in 95 per cent alcohol. He is careful not to force the solution into the uterine cavity. If this does not cure the cervical discharge he applies cultures of lactic acid bacilli, in which he seems to have great confidence. He says, "The application of a pure culture of lactic acid bacilli, or of yeast, owing to their destructive action on the gonococcus, will bring the infection to an end."

Pontoppidan[5] treats cervix and vagina with one-half per cent solution of hydrocloric acid in absolute alcohol. He also injects this solution into the uterus. He claims excellent results with this method.

Montgomery[4] paints cervix and vagina with one to four per cent silver nitrate, and inserts tampons of ten to twenty-five per cent icthyol.

Hartz[6] uses an aqueous solution of iodine (Lugol's solution). The acute cases he treats with vaginal douches of one teaspoonful of Lugol's solution to two quarts of warm water. The chronic cases he treats by applying the Lugol solution twice a week to the interior of the cervix on a cotton-tipped applicator. He then swabs the portio vaginalis with the same solution.

According to the investigation of Hartz, the cervix is the seat of the infection. He makes no application to the vagina. He reports twenty-five cases of chronic leucorrhoea treated by this method. Eighteen were cured in from four to ten weeks. Four were greatly benefited, and the rest escaped observation.

Morrow and Bridgeman[7] on the basis of three hundred cases pin their faith on two systems of treatment. One is the use of vaccines. The other is bi-weekly applications to vagina and portio vaginalis. Of the two applications each week, one is twenty-five per cent silver nitrate to the portio vaginalis and external os and ten per cent to the vagina followed by an

application of petrolatum. The other application is a paste of twenty-five per cent iodoform in glycerine.

With the above application they claim to cure chronic cases in an average of two months, while with all other forms of treatment which they have tried the average was one year. They claim that weaker solutions of silver are useless. The local applications are used in girls large enough to use the speculum in. For children they use only the vaccine and local cleanliness. They do not combine the use of the strong silver application with the use of vaccine. They claim that the efficiency of the vaccines and the strong silver applications is about the same, but that relapses occur after the use of the vaccines alone. It will be observed that they make no intracervical application.

Noble[8] advises in chronic cervical leucorrhoea the application along the entire cervical canal of forty per cent of formaldehyde, pure carbolic acid, or of silver nitrate (fifteen per cent). The vaginal mucosa is protected during the application and the cervical mucus is mopped away beforehand with bicarbonate solution.

DRY TREATMENT OF LEUCORRHOEA.

It has been recommended by various writers to treat leucorrhoea by powders. Of these a great many have been suggested. Oppenheim[9] advises for leucorrhoea of vaginal origin only the instillation into the vagina of talcum powder impregnated with a proprietary iodine compound called Yatren. Many other drying powders, as aluminum acetate, kaolin, bolus alba, alone or mixed with iodine, have been used. Dry powdered brewer's yeast and lactic acid bacilli have been advocated.

VACCINE TREATMENT.

The testimony on the treatment of specific leucorrhoea with vaccines and sera are about evenly divided for and against. Many observers have had good results; many record no results whatever. Few advocate vaccine in the acute stage; the sera can be used in the acute stage.

Robert[10] cites the use of vaccine with success in four acute cases. He used from two to four injections per case. In four cases of chronic leucorrhoea the results were unsatisfactory. Butler and Lang[11], of eighteen cases cured, eleven in the average period of fourteen days with vaccine. Hamilton[12], of eighty-four children, cured seventy-six in an average time of 1.7 months. With other treatments ten months were required to effect cures. Boas and Wolf in nine cases got no results. Morrow and Bridgeman[7] have used vaccine in a hundred and forty-eight cases. The results were on the whole satisfactory. Vaccine therapy alone was not so efficacious, however, as vigorous local treatment.

Neu in Heidelberg, and Hegemann and Moos[13] in Breslau got no results from the use of vaccine.

Horwitz[14] used gonococcus vaccine in four cases of vaginitis with no results. He used anti-gonococcic serum in four cases with no results. He says, speaking of the serum: "My custom is to administer the serum in 2 cc doses given daily for a week; then after five days remission again for seven days. This method is carried out for three or four weeks."

Corbus[15] treated four cases of leucorrhoea of specific origin with anti-gonococcic serum. He used fifteen cc per day for three days. The injections were intramuscular. In three cases the discharge stopped entirely; in the fourth case the discharge was lessened.

The treatment which has given me the best results in the following: The acute stages are treated with rest in bed, liquid diet, and bland hot douches. In the chronic cases the cervix is exposed twice a week with a bi-valve speculum. The cervical canal is then wiped free of mucus. The canal is then injected with a three per cent solution of iodine in seventy per cent alcohol. There is a great deal of difference in the ease with which this is done. If the woman has a patulous cervix exposure with

the bi-valve speculum is sufficient. In virgins it may be necessary to use a tenaculum and to dilate the canal with a thick probe. The syringe used is the deep urethral syringe of Wyeth. It must be washed at once as the iodine attacks the metal.

About half an ounce of a ten per cent solution of albargin is then injected into the vagina, the speculum is withdrawn, and the woman is kept on her back for twenty minutes. The albargin is used for the urethra, too, if it is involved. I never use the curet in these cases.

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POST-GRADUATE STUDY IN VIENNA.

By Numa D. Bitting, M.D.,
Durham, N. C.

The organization known as the American Medical Association of Vienna is truly a home for the American student. It is the medium through which he gains access to the various clinics and research departments of the University of Vienna. The secretary and Orientation committee are always ready and anxious to lend any assistance to the new student. He enjoys all of the privileges of the library, reading and smoking rooms. Here many choice medical books, journals, magazines and newspapers are to be found.

Vienna is almost unlimited in its supply of clinical material and hospital facilities. The close proximity of the hospitals greatly facilitates the work. Government ownership and regulation of the hospitals gives those in charge of the various departments almost absolute control of the patients, thereby enabling them to conduct experiments and research work on a grand scale. These three factors, namely, government regulation of hospitals, close proximity of hospitals, and super-abundance of clinical material, afford Vienna many advantages over other places. Government control and regulation of the hospital makes possible the most thorough clinical work as well as the minutest scientific investigation. This is true because of the fact that one man with a corps of competent assistants is placed in charge of a single institution, the assistants having a division of labor in the various departments of the institution. These men are accountable only to the government for their stewardship, because the government provides for their maintenance and exacts from them detailed reports for publication.

The bountiful supply of material together with the well organized clinics enables the student to come in contact and better acquaint himself with the rare, as well as the ordinary, forms of disease.

In the Vienna clinics special attention is paid to diagnostic and pathological work. Indeed, the clinician prides himself on being able to make a correct diagnosis. He spares no effort to accomplish this end. Every reasearch department with its complete equipment for experimental work is at his command. Much

time is spent in the clinical laboratory and post-mortem rooms. Every patient admitted to the hospital is subjected to a complete physical examination and an accurate record of the physical findings are kept for future reference.

The work in pathology is splendidly arranged and conducted in a thorough and systematic manner. Both general and special pathology is well developed, classified and subdivided, thus rendering it especially advantageous to those doing special work.

The pathological departments of the Schauta and Werthein clinics afford exceptional opportunities for the gynecologist to do much work in special pathology.

As to the laboratories, suffice it to say that they are no less well developed than other departments. Great stress is placed upon bacteriological and clinical diagnosis. Serum diagnosis and therapy are regarded as highly important, and receive much attention.

Functional tests of the various organs for the purpose of differential diagnosis are worked out in great detail.

The general hospital equipment is very elaborate and complete. Operating rooms are constructed and furnished so as to facilitate the work in every possible way.

The Anatomical Institute, containing a large amount of dissecting material, is open during the entire year. Here competent prosectors are in charge, thus rendering the material easily obtained.

Much more might be said, but the purpose of this paper is not to give a detailed account of the methods and schemes as carried out in the University of Vienna, but merely a brief sketch.

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Next Meeting, Richmond, Va., Nov. 9, 10, 11, 12, 1914

EDITORIAL DEPARTMENT

"ON TO RICHMOND."

As the time draws near for the November meeting of the Southern Medical Association, the progressive physicians of sixteen states are dreaming of the pleasures of a visit to historic and hospitable Richmond. They are also thinking of the privilege they will enjoy of a few days' association with the leaders in all lines of medical endeavor in the South, and of the benefits to be derived from hearing addresses and discussions on topics of particular interest to Southern physicians, by men who have had practical experience in dealing with diseases as they occur in the South. The dreams of those who are fortunate enough to go to Richmond will surely come true because the social side of a convention was never more carefully planned than by the Entertainment Committee for the Richmond meeting. Some form of entertainment has been provided for every hour that can be spared from the scientific work and the social features of the Richmond meeting will long be remembered.

The scientific work of the Southern Medical Association has been the wonder of those who are interested in medical organiaztions and the program for the 1914 meeting, as prepared by the Section Officers and by President McGuire, is fully up to the high standard of previous years, and in many respects it is the best program for a medical association that we have ever seen. This is particularly true of the youngest, though not the least important, Section on Public Health, which meets on Monday and remains in session until Thursday, but the officers of the other three sections deserve great credit for the splendid programs which they have arranged.

The first general session will be on Monday evening, when addresses will be made by Ex-Governor R. M. Cunningham, of Birmingham, Ala., and by Dr. Harvey W. Wiley, of Washington. The Oration on Medicine will be delivered by Dr. W. S. Thayer, of Baltimore; the Oration on Surgery by Dr. John A.

Wyeth, of New York, and the Oration on Public Health by Surgeon-General Rupert Blue, of the United States Public Health service. President-elect W. L. Rodman and Dr. George A. Simmons, Business Manager of the American Medical Association, will also deliver addresses. Surgeon General W. C. Gorgas, of the United States Army, will open the discussion in the Symposium on Malaria. It is not possible to mention in an editorial the interesting and instructive symposia to be participated in by many celebrated physicians, or the other special features of the four sections, but they will be found in the completed program in the special Richmond number of the SOUTHERN MEDICAL JOURNAL, which will be mailed about October 20.

The alumni reunions and dinners will be an attracitve feature of the meeting, a special committee of Richmond physicians having been appointed to arrange for them. The Medical College of Virginia and its affiliated schools, the University of South Carolina and the various medical schools in Baltimore and Washington are arranging for reunions of their alumni and there will be many joyous greetings of old college chums in Richmond.

Special trains from Memphis over the Illinois Central, from Louisville via Lexington over Chesapeake & Ohio, from Atlanta over the Seaboard Air Line, and from Jacksonville via Savannah and Charleston over the Atlantic Coast Line have already been announced, and a number of special sleepers carrying delegations from various cities and states will join these special trains at convenient points. Other special trains are being considered and may be provided by physicians in various sections of the South, announcement of which will be made in the Richmond number.

Never before has so much interest been manifested regarding a meeting of the Southern Medical Association and it is safe to say that a thousand or more of the progressive physicians will join the forward movement, "On to Richmond," there to mobilize for service in Southern medicine and surgery.

THE SOUTHERN ASSOCIATION OF RAILWAY SURGEONS.

At the approaching meeting of the Southern Medical Association at Richmond the organization of the Southern Association of Railway Surgeons as an auxiliary branch will be consummated. The first step was taken by the Lexington meeting last November, when the S. M. A. Council recommended that such an organization be formed.

Seventy or eighty of the prominent railway surgeons of the South suggested the move and that the officers be elected by the S. M. A. Council. No entrance fees or dues are to be required and the meetings are to be held at the same places with those of the Southern Medical Association, but one day in advance of the opening of that body. The Council elected for officers of the initial meeting Southern gentlemen who cannot fail to be acceptable. For president they selected one of the most famous of Southern surgeons, one who represents all that is best in his profession and in Southern citzenship, Dr. Duncan Eve, of Nashville. With such a leader, the success of the association is assured, for his ability is equalled by his popularity.

For vice-president they selected Dr. Thomas H. Hancock of Atlanta, one in every way suitable for the honor of the position. For the working member, the secretary, they named that genial, versatile, ready, capable live wire, Dr. Clarence H. Vaught, editor of the *Railway Surgeon,* the official journal of the Kentucky State Association of Railway Surgeons. Under such conditions it would be hard to overestimate the value of the new organization to its members and to the S. M. A. Circular letters have recently been sent to many prominent railway surgeons in the South, directing their attention to the approaching meeting of the proposed organization. The response to the invitation has been prompt and enthusiastic and already between 175 and 200 have signified their intention to join. The indications are that when the or-

ganization is completed at Richmond next month the Southern Association of Railway Surgeons will have 300 charter members.

This is indeed a most satisfactory beginning.

DOCTORS AS PREACHERS.

In a notable editorial with the above heading, the Philadelphia North American of June 25 commented at length upon the present activity of the medical profession along broad social lines, as evidenced by their frequent occupation of the pulpits in many churches on days devoted to the discussion of health problems.

Mentioning the presence "of fifty of this country's foremost docetors in fifty leading Philadelphia pulpits last Sunday," it proceeded, to the extent of a full column, to note several interesting features. It recalled that thirty-three hundred years ago the children of Israel would have expected from their priests similar health sermons, for those preached in Philadelphia on that June Sunday were based upon and largely confined to the principles of social strength and justice more than to any specific instructions for the preservation of health, "but significantly and impressively they dwelt upon the social and political value of right body care," including the prevention of communicable diseases and unwholesome practices.

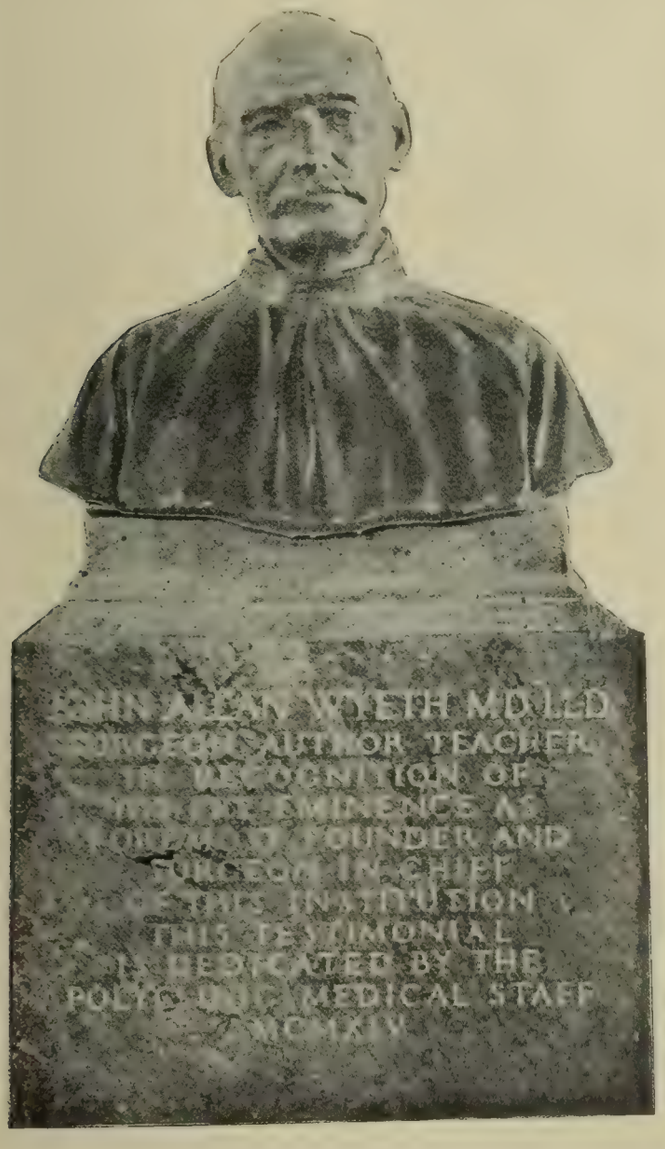
The editor of the Philadelphia North American seemed especially impressed with the fact that these distinguished physicians did not at all confine themselves to professional matters, but discussed upon a high plane those things inimical to the highest interests of the nation and the race.

Such comprehensive lines of discourse by doctors can surprise only those who fail to consider the length, breadth and depth of study and scholarship now demanded of him who would win the high privilege of ministering to the physical ills of humanity as a Doctor of Medicine. It is no exaggeration to say that the road to no other profession is hedged about with so many requirements of literary and scientific study, requirements which today are exacted to the last letter. This broad spirit of culture pervades the entire regular medical profession throughout the world, and that it is recognized by the people is shown by the frequency with which its members are invited to address religious congregations from the sacred desk. In the "empire" constituting the territory of the Southern Medical Association the practice is quite common. At its recent meeting at Lexington many of the prominent churches of that city as well as the rostrum of the Y. M. C. A. in Louisville were occupied by visiting doctors on the Sunday before the last meeting of the association, and from those pulpits they spoke the gospel of health and social unity to sympathetic congregations. Furthermore it is intended on the Sunday before the coming meeting of the Southern Medical Association at Richmond to place a number of doctors in the various pulpits, not only in that city, but also in Norfolk, Lynchburg, Roanoke and other important points in Virginia.

In Mobile it has recently been the custom of clergymen of various denominations occasionally to invite members of the medical profession to speak on Sunday in their churches upon health and kindred subjects. Recently on a certain Sunday ten leading Mobile ministers surrendered their pulpits to ten doctors, who told the citizens of the horrors and dangers of plague and the measures necessary to prevent its entrance into Mobile. The educational effect of these health sermons had much to do with awakening a public sentiment for exterminating rats and for the determination to make Mobile rat-proof. Time was when the priest and the minister was closest to the heart of the people; today it looks as though the doctor had assumed an equally intimate position. He is not only the healer, but also the wise friend and trusted leader.

A DESERVED HONOR TO DR. JOHN A. WYETH.

In the National Capitol the great rotunda is crowded with the statues of men who have rendered conspicuous services to their country. But the men thus honored have long since "passed over the river." In the great metropo-



lis another imposing structure, known as the Hall of Fame, is dedicated to the memory of distinguished American citizens who have rendered unusual services to humanity.

Men and women, soldiers and sailors, workers in every walk of life may aspire to such immortality as registration therein can confer, but ten years must elapse after their death before this right can be consummated. Human nature is so frail that the consensus of opinion is that it is unsafe to render signal honors in permanent form to any man, however eminent during his life, lest by some unexpected act he may render them inappropriate and absurd. Hence, when we find a man who through the number of years allotted to human life has borne himself so nobly and given such conspicuous service to humanity that his fellows feel warranted in disregarding the precautionary delay that is customary before erecting monuments to his memory, and invite him to be present at the unveiling of his statue that will celebrate his fame to the coming generations, the occurrence is worthy of special notice as a rare and splendid testimonial to his worth. Such a delightful honor was accorded to Dr. John Allan Wyeth, surgeon, author and teacher, on the first day of May, 1914, when in the hall of the New York Polyclinic Medical School and Hospital a portrait bust of himself, made by a distinguished artist, was unveiled in his presence as he stood there in the institution which he had created, surrounded by friends, and listened to their expressions of reverence and love.

The occasion was not only an honor to the recipient, but a demonstration that the abstractions of science and the intense pursuit of professional work and studies does not harden the heart against those sentiments of unselfish admiration and affection that are the very flower of human nature. The success of Dr. Wyeth in establishing the feasibility of delicate operations unattempted before his time, the support he won from all classes of people in his determination to establish a post-graduate school of medicine and surgery in America and the wisdom he has displayed in guiding its course to the very utmost pinnacle of usefulness and popularity, would alone mark him as a leader among men. But when we add to that the personal affection felt for him by all who know him it proves that he is not only a great man, but a good man. May his sunset years be crowned with peace.

BERIBERI CAUSED BY DEFICIENT VITAMINES.

There has recently been published a report of Dr. Edward B. Vedder, compiled from his investigations and studies of beriberi, incident to the appointment of a special commission of the United States Army for the study of tropical diseases as they exist in the Philippines. So interesting and important are the results that this report may with profit be briefly abstracted for the readers of the SOUTHERN MEDICAL JOURNAL. The status of the beriberi problem has been nothing but confusion and uncertainty until within recent years, and it was for this reason that the above commission was appointed. This condition seemed to baffle the most careful and accurate observers, furnishing no information for its prevention, and consequently it was considered a more serious problem than yellow fever, smallpox, malaria and the like, of which definite preventive measures were known.

Beriberi is defined as "an acute or chronic disease, characterized by changes in the nervous system and particularly by a multiple peripheral neuritis, with an especial tendency to attack the nerves of the limbs, the pneumogastrics and phrenics." Its pathology is described as falling into three groups, of which the essential factors are: 1. Changes in the Nervous System; 2. Changes in the Heart, degeneration of the muscle fibres, dilatation; and 3. Anasarca and Effusion. Likewise the symptomatology groups around these elements of the pathology, as symptoms of peripheral neuritis, cardiac insufficiency, and a generalized tendency to oedema.

The author states that the idea that beriberi was caused by some deficiency in the food is not new, but has been advanced for a number of years. As early as 1859 this explanation was advanced for the existence of beriberi in certain places. Takaki, in 1884, decided that beriberi was due to a nitrogen starvation, consequently he had the ration of the Japanese soldier changed to a more liberal diet, with the result that the number of cases of the disease was markedly diminished. In 1907 Braddon published a book on the "Causes and Prevention of Beriberi," in which he advanced the theory that this disease attacks those that are rice eaters, and does not attack those who do not eat rice. Further, that among rice eaters its incidence varies with the sort of rice eaten. However, he thought the explanation was in a fungus growing in the decorticated rice. Many experiments were performed to prove the contention of Dr. Braddon, that uncured rice was the cause of beriberi. In 1907 Drs. Frazer and Stanton attempted once for all to determine the exact relation that rice had to the production of beriberi. They took 300 Japanese laborers into a virgin jungle, under new and sanitary environment. Excluding the possibility of carrying infection, they divided the company into two equal parties. One party received the polished rice as the staple article of diet, while the other party received the cured rice. After a certain length of time, about three months, beriberi appeared among those receiving the white rice, while the others remained free from it. The order was reversed in the parties, with the exact result. The epidemic ceased with the discontinuance of the white rice.

It was then observed that the difference in the highly polished, or overmilled, and the red, or the under-milled rice, was in the washings which removed the pericarp and the aleurone layers. In these two layers was found the large per cent of phosphorus, and hence the phosphorus pentoxide content of the rice determined the safety of consumption as a food. Rice with a low phosphorus pentoxide content indicated only a small amount of the pericarp and aleurone layers remaining on the rice, which was usually the variety that produced the beriberi. Another method that was employed for the same calculation was Gram's iodine, which colored the grain gray, in the presence of the pericarp, but made it intensely blue if it had been removed by the milling process.

It has been found that this same disease, or a disease resembling it very closely, can be produced in fowls, animals, and in the infant taking milk from the mother suffering with beriberi. Likewise, it has been found by adding to the diet of polished rice certain foods, such as the katjang idjo, a legume, and the washings of polished rice, that this diseased condition could be prevented or cured. From the fact that the deficient element of polished rice was removed and remained in the polishings led many to speculate as to the exact nature of the substance. Some claimed that it was a deficiency in fat, inorganic salts, nucleins, albumen and phosphorus. It was in December, 1911, that Funk made the greatest progress towards solving the problem, for he found that "the active substance of an extract from rice polishings could be precipitated by phospho-tungstic acid, and also by nitrate of silver in the presence of baryta. By combining these two methods he was able to isolate a crystalline organic base, having a melting point of 233 degrees C. The chemical analysis showed that this base might be provisionally regarded as consisting of $C_{17}H_{20}N_2O_7$. The same base was subsequently obtained from yeast and other foodstuffs, and the administration of about 0.02 grams of this substance to pigeons suffering from polyneuritis effected a cure. Funk considered this a pyrimidine base analogous to uracil and thymine, and suggests the name of *vitamine* for it, as being one of the nitrogenous substances, minute quantities of which are essential in the diet of birds, man and some other animals." This work has been corroborated by Vedder and Williams, obtaining the same crystalline base. It is suggested that this base is probably a constituent of nucleic acid. Other investigators later obtained substances called "torulin," "anti-beriberin," and "oryzanin," but it is very probable that after all these elements have been more thoroughly studied that the term vitamine will be adopted.

The author suggests that deficient vitamines may be the explanation of other conditions such as scurvy, on account of definite essential nutritional substances not being present in the usual diet.

It is interesting in this connection that from the laboratory of the Tulane School of Tropical Medicine, New Orleans, it was determined that any single diet of other carbohydrates will accomplish precisely the same results as the polished rice.

Briefly, as to the treatment. It seems that the best results have been recorded from the administration of the extracts of rice polishings already described. Very successful results have been had by using the vitamine extracted by Funk, but there has not yet been sufficient time to thoroughly test it.

THE SUPRARENAL SECRETION A POSSIBLE SOURCE OF DANGER.

The possibilities of disaster that may lurk in procedures of apparently the most innocent character are illustrated by a recent unfortunate occurrence.

A minor operation was to be performed. The patient breathed a few whiffs of chloroform. To avoid loss of blood the doctor injected into the nostrils five minims of the ordinary one to a thousand solution of adrenalin. Almost immediately pulse and breathing ceased and the patient was dead. Had the doctor first secured complete anesthesia, or had he ignored the danger of hemorrhage, there would probably have been no tragedy. Pharmacology has learned that the effect upon the heart of this mysterious product of the supra-renal glands is greatly intensified by partial chloroform anesthesia, but is not much affected by complete surgical anesthesia. Thus the ordinary rules of caution are set at naught.

Any addition of epinephrin to the circulation at the time of giving chloroform may cause a ventricular fibrillation that will be instantly fatal. Another point of supreme importance demands consideration. It is claimed that excitement or fear causes an increase of secretion of adrenalin, which acts just as

though it was injected from the outside of the body, increasing arterial tension and blood pressure. Then a whiff or two of chloroform might induce sudden fibrillation and death. How often do we hear of such deaths at the very beginning of chloroform anesthesia. We have ascribed them to weak hearts. Now we know a better explanation. In this connection it will be remembered that the morphine scopolamine compound is said to banish all fear of an operation and cause a condition of calm confidence. We can see at once how useful that might be.

HEXAMETHYLENAMIN FOR INFECTIONS OF THE URINARY BLADDER.

Just at present there is a division of opinion as to the efficiency of hexamethylenamin as a disinfectant of the urinary bladder.

All agree that its value depends upon its yielding free formaldehyde, which occurs only in an acid medium. Formaldehyde will be found in acid urine after the injection of hexamethylenamin, but never in alkaline urine. Hence it is needful to acidify alkaline or neutral urine in order to secure the germicidal effect of the drug. For this purpose the most sure and harmless agent is dilute hydrochloric acid, 15 drops in a glass of water an hour before and an hour after taking the medicine. They should never be given at the same time. Benzoic acid and boracic acid are sometimes given for that purpose, but they are inferior to the other. The hexamethylenamin should be given in doses of not less than ten grains, in capsules, one hour before regular meals. At this time the gastric contents are most apt to be alkaline and therefore will not prematurely decompose the drug, which would then release formaldehyde and cause great irritation of that viscus. The least strength of a solution of formaldehyde in urine to be of any clinical value is 1|30,000; a strength of 1|5,000 is sufficient to inhibit the growth of most organisms, and 1|6,000 is germicidal.

Whether or not the administration of hexamethylenamin for the purpose of disinfecting other cavities is a successful measure remains undetermined. Certain physicians have had good results to follow it, while others fail to obtain any benefit whatever. Of course, the natural alkalinity of the blood enables it to deposit a solution of hexamethylenamin, undecomposed, to suppurating tissues, but unless their discharges display acidity it is difficult to understand whence can come the decomposition necessary to release the formaldehyde. The question is far from decided.

THE BICHLORIDE PROBLEM.

The idea that when bichloride of mercury is sold to the laity in form of tablets it should be combined with tartar emetic seems to be logical in view of the frequent accidents and suicides that are everywhere occurring from swallowing the so-called antiseptic tablets. A formula suggested for each tablet is 7.3 grains of mercury bichloride, 7.7 grains of amonium chloride, and 1.25 grains of tartrate of antimony of potassium, so compounded that the tartar emetic will produce vomiting before the caustic and poisonous effects of the corrosive sublimate can occur. It is claimed that the tablets so compounded will be even more efficient as an antiseptic and germicide than the form at present in use. If experience confirms this view, the legislature of every state should make it unlawful to dispense or sell any other form of bichloride tablets except to physicians personally.

AMERICAN COLLEGE OF SURGEONS AND FEE SPLITTING.

"At the meeting in Washington when the American College of Surgeons was founded, the question was asked whether the college would positively exclude surgeons who were suspected of fee-splitting or paying commissions in any form whatsoever. The president declared that no one should be admitted who was suspected of being guilty of this pernicious practice. This declara-

tion was received with universal and most enthusiastic applause.

"It does not seem possible that many men who would otherwise be eligible can belong to the class of fee-splitters, but the fact that the matter was so much emphasized has induced the Committee on Credentials to prepare the following positive declaration, which will be filed in connection with the credentials of each fellow.

"If the college succeeds in eliminating this evil, the public will be enormously benefited."

The following is the declaration to be signed by every member:

"I hereby promise upon my honor as a gentleman that I will not, so long as I am a Fellow of the American College of Surgeons, practice division of fees in any form; neither will I collect fees for others referring patients to me; nor will I permit them to collect my fees for me; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate anyone referring patients to me; nor will I utilize any man as an assistant as a subterfuge for this purpose."

The action of this body cannot be too strongly commended for the good work being done to rid our profession of this pernicious system of graft. This illegitimate offspring of professional seduction has slowly eaten its way into the core of our morals and contaminated us with its greed for gold. At the Jacksonville meeting of the Southern Medical Association resolutions were adopted which stamped on the face of this procedure its hearty and cordial disapproval. County medical societies should include this or a similar pledge in its blanks for membership, and the state association should take advantage of every opportunity to discourage the practice. Moreover, every doctor should lend a helping hand to eradicate this evil and place the medical profession on a higher plane of honor and honesty by exposing it at every turn and refusing to become particeps criminis to any such arrangement. This should apply to medicine as well as surgery, and every doctor and every surgeon should collect his own fee. No money must go from one to the other without the full knowledge of the patient or his agent. In some states there have already been placed on the statute books stringent laws in this regard. Honesty, open and above board is, after all, the best policy to pursue.

THE FOURTH ANNUAL REPORT OF THE JACKSONVILLE BOARD OF HEALTH.

The fourth annual report of the Board of Health of the city of Jacksonville, Fla., for the year 1913 is one of the most complete of its kind gotten out by any city, and should serve as a model for Southern cities which have not perfected a system of reports.

Although this city is old from a historical standpoint, yet she is new in her ideas and ideals of sanitation and public health, and is to be commended for the good work being done through her corps of efficient guardians of the commonwealth with the hearty co-operation of interested citizens.

The negro population of Jacksonville constitutes something over 50 per cent of the total, and the task is rendered all the more Herculean on this account. But splendid conditions are being worked out, and such diseases as tuberculosis, typhoid, malaria, smallpox and other preventable diseases are fast being driven from their strongholds and their forces weakened.

The isolation hospital is a beautiful structure, splendidly built, and well situated. Something unique is given in the fact that the sale of habit-forming drugs is included in the report, inasmuch as they have a bearing on public health. Among the officers and employes of the Board of Health, in addition to City Health Officer Hanson, are a Bacteriologist, Chemist, Secretary, City Physician, School Medical Inspectors, School Nurses, Colored District Nurses, Chief Sanitary Inspector, Dairy and Milk Inspector, Meat and Market Inspector, and Sanitary Patrolmen.

Jacksonville is to be congratulated upon having such an up-to-date and efficient department of public health.

CORRESPONDENCE

"WHY SOME DOCTORS PRESCRIBE PROPRIETARIES."

Waycross, Ga., Sept. 11, 1914.

Editor, Southern Medical Journal, Mobile, Ala.

Dear Doctor Harris: I have just read with considerable interest your editorial "Why Some Doctors Prescribe Proprietaries." It is time the profession realizes that no progress is being made in therapeutics The doctor of fifty years ago wrote better prescriptions than the doctor of today.

The graduate of today is not only not taught materia medica and therapeutics, but he is given the impression in clinics and hospitals that what little he has learned is best laid away in the remotest corner of his brain, and that prescribing is nothing more or less than a system of numbers and names: formula No. 1 for cough, formula No 2 for fever, and so on.

Is it at all surprising that he prescribes, say, antikamnia simply because he has received through the mails "literature" proclaiming its virtues? The only difference is that he now has a name to learn instead of a number.

To determine roughly how many proprietaries and "pharmaceutical specialties" were being prescribed, I asked a druggist in Atlanta in 1911 to go over the last 100 prescriptions on his file and make a list of them. Of the 100 prescriptions, written by 56 physicians, 48 contained one or more proprietary or specialty.

It is time to call a halt. We have acted as avertising agents long enough. Give us some more editorials along this line.

Yours very truly,

ALBERT MASON, M.D.

WHAT DAD THINKS ABOUT THE LUETIC SUPPOSITION IN PRACTICE.

My Dear Son: I have lately had an experience which has very forceably called my attention to the point you raised in your last letter to me, viz.: "How much syphilis is there in the United States, and to what extent is a doctor justified in regarding every difficult or undiagnosable case as one with a specific history, and, therefore, properly, the subject or object of the most heroic treatment that can be administered to the victim of the frankest kind of syphilis?"

I had a case come to me lately with a very large and perfectly hopeless aortic aneurysm, which was slowly increasing in size and in the distress it was giving. I had read some wonderful reports of practical cures of aneurysm by a man who had given much of his time to work that the majority of the profession had neither time, ability, nor credulity enough to take hold of. The patient was a remarkably able business man, with the keenest possible sense of honor, and the habit of telling the truth whether it was for or against himself. In making the prognosis, and in the search for some possible line of treatment which might give a little relief, all the tests known to science had been applied; he had also been stripped and examined in toto for scars or signs of a syphilitic infection. Nothing was found on the examination table nor in the laboratory that in the remotest way could point to any infection. In his history there was not even a case of gonorrhoea, or pediculi, or herpes to tell of, nor any eruption, or tendency to "throat trouble," or anything that looked in the slightest degree suspicious. There was nothing except the fact that a majority of the cases of aneurysm were found in persons having a history of infection at some time in their lives. Before he came to me he had had treatment of an active antisyphilitic character, and had in every way failed to respond to it; not even the slightest shadow of arrest or improvement could be seen. Well, he went to see the doctor I told him to, and he went at a heavy cost in time and money. And the result was that he came back much worse in every way, and was soon dead; for the doctor did not believe in accepting any other doctor's diagnosis, or even in letting the patient know that other doctors lived in this world. It was his honest opinion that he was the only man who knew anything of the art and science of medicine. He put the patient through some fool stunts, which he denominated an unfailing test for syphilis, declared he had it, and at once jumped in with the most tremendous inunctions of mercury, giving in forty-two days forty rubs, and treating him as he would only treat the most malignant and active cases. The special treatment on which was based my wish for this patient to see this particular doctor was, it is true, carried out in what was said to be his usual method. But with the overwhelming of the system by the mercury what chance was left for anything to do any good or afford any relief? Why have a special treatment if the old, old, old method had to be pushed to extremity? The patient came back with an acute catarrhal bron-

(Continued on page XVIII.)

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(Continued from page 844.)

chitis, diarrhoea, and a lot of symptoms he had not had before; and the worst feature was that nothing gave him even temporary relief till death terminated the case.

To my mind it will always be possible to see in the treatment he had, for a disease that he had never had, the cause of the shortening, by a year at least, of the life of this patient; and I think no question is more pertinent than that of, "Why did the doctor do it?" Is it a fact that a man cannot have an aneurysm unless there has been a syphilitic infection? Stout hearted would be the man who would pin his reputation to an affirmative answer to the last question, and his knowledge would not hold its head up long in the presence of men who know. It would be as sensible to claim that no man ever "got religion" who had not previously had syphilis, and to say that the conversion of St. Paul was a remote tertiary manifestation, as to make a claim that nothing but a syphilitic aortitis could lead to an aortic aneurysm. This patient in his college days had been a famous runner, and he had been known to faint after a dash for a prize, which he won, and came in far ahead of the rest of the racers, and was resting in a deep syncope when they arrived. The strain in these races was enough to lead to trouble which, in later years, would bloom in an aneurysm. All these facts were laid before the doctor; and why did he do it? And why did he think it necessary "to go for" the supposed condition in a more severe and drastic manner than he would if the man had had every symptom, sign and manifestation of the most active syphilis present on, and in, his body at that time? Is it taught in any college in the land that all cases which cannot be easily treated are to be considered as having a tertiary syphilis? Are there enough cases of syphilis in the United States to give us a vast army of cases which have never shown any manifestations in any way, and who do not even know of having had the disease themselves? In a disease having so large and so many disagreeable elements of disgrace attached to it there is no possible chance to get exact figures as to the number of persons having it. If my own figures were to be taken I would say that fifteen per cent of the people were infected. If those of the late Dr. Greenway could be had they would probably run somewhat near fifty per cent. The estimate of a man who had done a large, if not lucrative, practice in some rural district, where life was primitive and the chances for infection few, would be that not a half of one per cent of the people he had seen sick during the course of his professional life had had syphilis. And thus the estimates will vary with each man talked to on the subject. As there can never be framed a law drastic enough to make all medical men report the cases occurring in private practice, we are compelled to guess at the general average, and I guess that five per cent of the people of America have been infected. I do not think this too large an estimate, nor can it be said to be too small; but it is truly terrible when one thinks that this small figure means that an army of five millions of our people, in some way, by inheritance or by acquirement, have been, or are now, infected by the spirochaete pallidum. Of this number we will consider that there will be found one in every thousand who have had no primary sore that could be felt or seen, and who have been totally lacking in all the manifestations of the secondary as well as of the primary stage, and yet they are liable to all the concentrated hells of the third degree of the disease. It is also more than likely that there will be found in each thousand four persons who have so little sense as to lie to their doctors, and to believe in the old saying that "a lie well stuck to is as good as the truth." We thus have five out of every thousand of those having had syphilis who can be called fairly good patients for the most drastic and searching antisyphilistic treatment in case of obscure illness. But this calculation only gives us some twenty-five thousand persons, and fools, who can rightfully be so treated, and it is not safe to say that they all need it even once in their lives. So you can easily see that the numerical base is not broad for one to stand on, when he thinks there is a justification for jumping in with a treatment that can only be of benefit in cases which are syphilitic, in every case he comes to which is in any way obscure, doubtful, or likely to die. The supposition that every patient has at some time had syphilis has made the reputation of a few men in medicine, but I think it has done more harm to many than one can easily measure, for it is wrong in principle and in practice. It is the duty of the doctor to do as little guessing in his work as he possibly can; he should know. In these days of able laboratory work, and reliable tests, and known reactions, there should be less and less excuse for taking for granted conditions which do not exist, and the chance shot should not be tried unless everything else has been found a failure.

If you will study deeply this disease you will find it opens a fairly good road through the med-

(Continued on page XX.)

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(Continued from page XVIII.)

ical wilderness; that knowing it you know much of pathology, for its manifestations in the various organs and parts of the human body touch every disease, and its symptomatology copies that of all in some cases. Therapeutically its study is the best antidote for that affliction known as therapeutic nihilism that can be given a thoughtful man. When one sees the leper of the active cutaneous secondaries transformed in a few weeks into the smooth-skinned, apparently normal man, there is no need for the delivery of a lecture proving that medicines do have, at times, power. Of course, if you want to shine in the very best medical society, you should, in season and out of season, convey the impression that there is nothing in the dosing of patients; that it is, after all, suggestion that cures, and that patients get well only because they had faith and the stars were propitious. This attitude of mind will, in no way, interfere with your practice in cases where you can use the "leutic supposition," for the heaviest dosers in the world, in these uncertain cases, are those who do not, at all, believe in the use of medicines in any disease or condition.

Hoping you will pardon the length of this, I am,

Your affectionate dad,

HIPPOCRATES PLUM, M.D.

BOOK REVIEWS.

Women and Morality.

Women and Morality, by a Mother; Men and Morals, by a Father; The Sexes Again, by Gasquoine Hartley; Introduction by Wallace Rice. The Laurentian Publishers, Chicago, 1914.

This book on morals and sex contains three small divisions from the pen of English writers, with an American introduction, as outlined above. In it are discussed the problems of sex and the standard of morals for each class. It shows that celibacy is unnatural in both sexes. In the first part the statement is made that nearly all unmarried men are immoral; that it is useless to preach a single standard for both men and women on account of physiological and anatomical laws, and that the alternative is a new conception of morality. Further on there are more solutions given, such as early marriages, a form of free love contract marriages, and the old solution of maintaining the chastity of one class of women by the ostracism and degradation of the other. It claims that women have naturally greater sexual instincts than men, and sets forth the causes that have turned them away from their position and bestowers of love.

Infantile Paralysis.

A Manual of Modern Methods of Treatment; including reports based on the treatment of three thousand cases—by H. W. Frauenthal, A.C., M.D., Surgeon and Physician-in-Chief, New York Hospital for Deformities and Joint Diseases; and J. Van Vliet Manning, M.D., Epidermiologist, Wisconsin, 1908, Epidemic Acute Poliomyelitis. Copiously illustrated with more than one hundred engravings, nearly all original. F. A. Davis Co., Philadelphia. Price, $3.00 net.

This work is largely based on personal experience with acute poliomyelitis, its epidemic appearance, symptomatology, diagnosis, prognosis, and methods of treatment. Its etiology is taken up and discussed. The possible transmission through inoculations, bed-bugs, flies, etc., is well given. The part dealing with the pathology of this disease deserves especial mention. The treatment includes medicines, surgery, etc., and is the deductions of a large experience in treating this disease and its results. It is important to note the suggestion of the relationship between rabies and poliomyelitis which simulates identity. The differential diagnoses are helpful, and the illustrations good.

State Board Questions and Answers.

By R. Max Goepp, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Third edition; thoroughly revised. Octavo volume of 717 pages. Philadelphia and London: W. B. Saunders, 1913. Cloth, $4.00 net; half Morocco, $5.50 net.

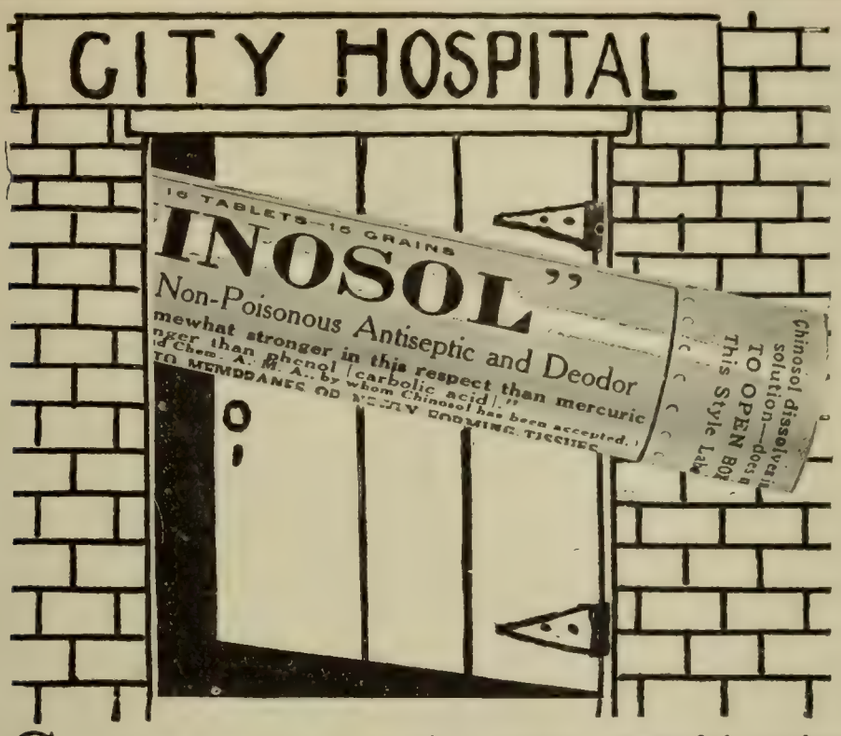
The new edition of this excellent book on state board questions and answers surpasses former editions in containing important facts on serology, serum and bacterin therapy and chemotherapy. Emphasis is laid on tropical disorders, and many of the new psysiological methods. This book would make an ideal text for review in general medicine during fourth year of medical course.

Genito-Urinary Surgery.

Surgical Diseases and Injuries of the Genito-Urinary Organs. With 27 color and 21 black and white plates and 279 illustrations in the text. 8vo. 790 pages. Price, $7.00. Funk & Wagnalls Company, publishers, New York. By J. W. Thompson Walker, M.B., C.M.Ed., F.R.C.S.Eng., Hunterian Professor of Surgery and Pathology, Royal College of Surgeons of England; Urinary Surgeon to the Radium Institute; etc.

In this volume is given an account of the diseases and injuries of the urinary system, and the treatment of same both medically and surgically. Historical procedures and far fetched theories have been left out to give room for a fuller discussion of practical and modern methods. The anatomical classification of diseases is given rather than the pathological classification, yet the pathology is not by any means forgotten, and the

(Continued on page XXII.)



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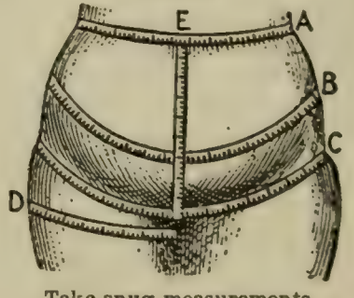

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(Continued from page XX.)

real, living pathology of the operating room is given for the benefit of the surgeon. Special attention is given to both immediate and late results of operation, and the illustrations, especially cystoscopic, are of exceptional value. It is divided into eleven parts, treating, respectively, of kidney, ureter, bladder, urethra, prostrate, seminal vesicles and Cowper's glands, the testicle, the temica vaginalis, the spermatic cord, the scrotum, the penis.

Infant Feeding.

By Clifford G. Grules, A.M., M.D., Assistant Professor of Pediatrics at Rush Medical College; Chief of Pediatric Staff, Cook County Hospital. Second edition, thoroughly revised. Octavo of 314 pages, illustrated. Philadelphia and London: W. B. Saunders Co., 1914. Cloth, $3.00 net.

The subject is one which concerns every general practitioner and is presented in the most concise form consistent with clearness. The anatomy and physiology of the infant gastro-intestinal tract, the normal child, breast milk, nutritional disturbances in the breast fed and in the artificially fed infant and feeding in diseases are given the consideration each deserves. The necessity for a second edition is proof of its popularity.

Diseases of Infancy and Childhood—Their Dietic, Hygiene, and Medical Treatment.

A text-book designed for practitioners and students of medicine. By Louis Fischer, M. D., Physician to Willard Parker and Riverside Hospitals of New York City; Pediatrist to Sydenham Hospital; Former Instructor in Diseases of Children at the New York Post-Graduate School and Hospital; etc. Fifth edition, with three hundred and one illustrations, several in colors, and forty-three full-page half-tone and color plates. F. A. Davis Co., Philadelphia. Price, $6.50 net.

The revised edition of this book is in accord with the rapid strides in pediatrics. This branch of medicine is receiving more attention and is being given a wider range. The food values of sugars, fats, proteids, etc., are clearly dealt with, the indications for their use are given, and the portion dealing with infant metabolism is of special interest. The Berlin School Classification of gastric and intestinal derangements is given, consequently food intoxication, decomposition, etc., form important chapters. There have been added to this edition articles on anaphylaxis, amoebiasis, uncinariasis, acetonemia, etc. Of especial value is that part which deals with infections and contagious diseases, and the colored plates show beautiful illustrations of these. Infant feeding and disease of the newly born are exceptionally good.

Practical Therapeutics.

Including Materia Medica and Prescription Writing, with a description of the most important new and non-official remedies passed upon by the Council of Pharmacy and Chemistry of the American Medical Association. By Daniel M. Hoyt, M.D., former Instructor in Therapeutics, University of Pennsylvania; Fellow of the College of Physicians; Assistant Physician to the Philadelphia General Hospital. Second edition revised and rewritten. C. V. Mosby Co., St. Louis, Mo. Price, $5.00.

This book is arranged so that it merely requires a glance to get the drug, its physiologic action on different organs and tissues, toxicology and therapeutic indications. This makes it a great time-saver and is worth the price within itself. It contains a list and descriptions of all the new and non-official drugs passed upon by the Council of Pharmacy of the American Medical Association. It greatly aids the dispensing physician by showing him what drugs he may safely use and the clinical applications therefor. It also shows the importance of simple and rational prescribing based on known physiologic action, and indicates the limitations of drugs in treating the various diseases. A brief outline of vaccine therapy has been added, as well as a chapter on the proprietary medicine evil and a short article on office dispensing.

Diseases of the Rectum and Anus.

By A. B. Cooke, A.M., M.D., formerly Lecturer on Diseases of the Rectum, and Professor of Anatomy, Medical Department, University of Nashville; formerly Professor of Anatomy and Clinical Proctology, Medical Department Vanderbilt University, etc. 619 pages, 215 illustrations, besides 20 colored plates. Philadelphia and London: F. A. Davis Co., 1914. Price, $5.50 cloth, net.

This is an exhaustive book upon the subject, giving the viewpoints of ten surgeons prominent in this particular branch of the profession. In reading the different chapters one is impressed with the fact that, although written independently of each other, the views upon essential points are entirely in accord, the differences being due to individual preferences. It covers the subject completely and has its place in current literature.

SOUTHERN MEDICAL NEWS

ALABAMA.

At Mobile the City Commissioners have authorized the health officer, Dr. C. H. Mohr, to expend as much as $50,000 in cleaning up the city and rendering its wharves and buildings rat-proof. Professional rat catchers are employed to trap or poison rats which are then subjected to bacteriological examination for infected fleas. At the time of this writing no infected rats have been found in Mobile, and no cases that could be suspected

(Continued on page XXIV.)

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(Continued from page XXII.)

of being bubonic plague. The City Commissioners have passed an ordinance requiring owners of all buildings east of Royal street to the river to be rendered rat-proof according to specifications made by the officials of the U. S. Public Health Service, one of whom, Dr. Grubbs, has been detailed for work in Mobile. All stables east of Royal street are to be treated in the same way. Property owners are not allowed to let weeds or wild grasses over one foot tall to stand on their premises. The commissioners have supplied an automobile for the use of officers in the health department. The city is divided into districts, with an inspector and five assistants in each district.

At Montgomery the Alabama State Board of Medical Examiners has completed the examination for 1914 of applicants for licenses to practice medicine. Seventy-four of the applicants passed, which is a little more than fifty per cent of all applicants. The graduates of the University of Alabama, at Mobile, all without exception passed the examination successfully. Six states were represented in the list of applicants.

At Birmingham, Dr. R. M. Cunningham, city health officer, is regularly issuing bulletins concerning communicable diseases. Typhoid fever, malaria, measles, whooping cough, scarlet fever, meningitis have thus far received his attention.

Dr. Jessee P. Chapman, formerly of the School of Medicine of the University of Alabama, at Mobile, has accepted the Chair of Biology in the Atlanta Medical College, and has moved to Atlanta.

Dr. J. Mack Reed, of Bay Minette, was married to Miss Louise McMillan, of the same place, September 17.

ARKANSAS.

Dr. Frank P. Young, who succeeded Dr. Morgan Smith as secretary of the Arkansas Board of Health, has moved with his family to Little Rock, from their former residence at Springdale.

At Little Rock Dr. Vaughan, City Health Officer, has warned the citizens to refrain from using well water unless it has been examined by the city and pronounced free from typhoid germs. He states that the several cases of typhoid fever in the city had all been traced to the use of well water. He declared the city hydrant water free from germs and advised the citizens to use it in preference to well water even though a little distasteful.

In the same city Dr. R. B. Corney, who has for the past six months been taking a post-graduate course in New York City, has returned, and is again at his office in the Riegler building.

Dr. T. B. Bradford, of the Rockefeller Hookworm Commission in Arkansas, reports that the people in Monroe and Lee Counties are beginning to feel apprehensive about the spread of pellagra. He mentions seeing twenty cases in those counties and noticed particularly that of these eighteen were users of tobacco in some form, especially snuff.

Dr. R. H. von Ezdorf, with his party of medical investigators, has made a malarial survey of Little Rock. The data secured will be placed at the command of the City Board of Health to aid them in their efforts to prevent the spread of malaria. Late Dr. von Ezdorf, with Dr. Deriveaux, went to the rice fields near Lonoke to continue their studies. From there they will go to Helena.

At a meeting of the Arkansas Pellagra Commission the chairman, Dr. D. B. Young, reported that there were more than 1,000 cases of the disease in Arkansas. The health officers of the state are deeply concerned at the rapid increase of the disease.

At Stuttgart, Mrs. Annie B. Stoops is superintendent of the electric light plant and also president of the City Board of Health.

It is reported that the U. S. P. Health Service and the state health officials will establish a test station at Blissville for the observation of malaria and hookworm.

At Little Rock, August 17th, the well known physician, Dr. J. L. Vail, was fatally injured in an auto collision, his light machine being overturned by a heavier one driven by a negro.

At Cotter Dr. Walter K. Gray has been appointed local surgeon for the Iron Mountain Railroad at that point.

At Conway Dr. G. W. Hudson, an ex-Confederate surgeon, died of pneumonia on the 24th of August.

At Little Rock Drs. M. D. Ogden, A. M. Zell, A. E. Harris, and O. K. Judd announce the removal of their offices from the Urquhart Building to Suite 321 Bankers Trust Building.

FLORIDA.

The report of the State Board of Health published in June a series of vital statistics showing the number of births and deaths in various cities. According to this Ocala has a death rate of less than half that of other cities of its size in the state. The papers in those other cities are engaged in protesting and explaining. The Ocala Star suggests that the fault lies in the imperfect reports handed to the State Board by local officials.

(Continued on page XXVI.)

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Goodyears are more than quality tires—more than the utmost in fabric and formula. In addition to that, they combat your four chief tire troubles in these four exclusive ways.

That's why more men buy them than buy any other tire. And legions of new users now adopt them every month. You will always insist on them when you know their advantages, and any dealer will supply you.

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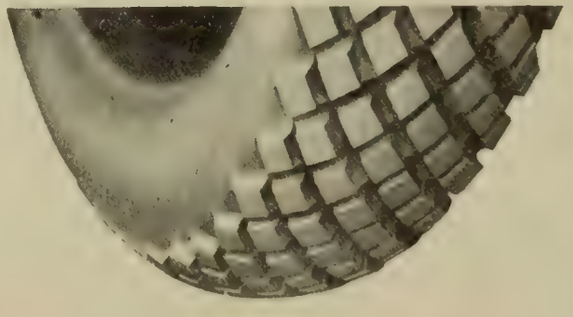

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(Continued from page XXIV.)

Chief City Health Officer of Jacksonville, Dr. C. E. Terry, states that though hundreds of wharf rats have been examined no trace of plague infection has been found. City Sanitary Inspector George C. Floyd states that in his opinion sanitary conditions throughout the city are in good shape, and those in the outlying districts are also satisfactory.

At Pensacola the city pays five cents for each rat delivered. Each is examined bacteriologically, but no trace of plague infection has been found. By about the middle of July over 400 rats had been captured. Dr. F. A. Brink, city bacteriologist, together with Dr. Biggett, of Tallahassee, visited New Orleans to observe the sanitary technic there employed.

At Tampa the war against rats is being energetically pushed. Miguel Llorente, the official rat catcher, brings in about fifty rats every day for examination. The city pays all other persons five cents per rat delivered at the sanitary department.

The negro longshoremen amuse themselves while waiting for ships by catching rats, thereby increasing their earnings. Dr. R. J. Dickerson reports that a man came to his office for treatment and he found prominent symptoms of leprosy. He notified the patient, who showed no surprise, and was to return for the results of a blood test. He did not come back, and the doctor reported the case to the authorities and to the State Board of Health.

The Jacksonville Board of Trade pledges $500 towards the expenses of The American Health Association, which meets in that city in December.

The State Health Officer has issued an order forbidding the bringing of freight cars from New Orleans to any municipality in the state unless they were inspected and sealed by the U. S. Health Officers at New Orleans. The mayors of all towns are notified to take notice of all such cars coming to their towns and see that the seals are unbroken.

The State Board of Health has awarded a contract for the construction at Pensacola of a new laboratory, to be built of concrete and terra cotta, at a cost of $20,000.

Tampa has sent Dr. C. W. Bartlett, local health officer, to New Orleans to study the plague situation. He went by order of Dr. J. Y. Porter, State Health Officer.

Dr. Robert L. May has removed from Jacksonville to Quitman, Ga.

GEORGIA.

At Athens, where there has been a number of cases of typhoid fever, the disease is decreasing rapidly. The sanitary authorities have energetically cleaned up the city and urged the citizens to co-operate with them in every way. Beside the smaller fly traps used domestically about one hundred and fifty of the big western fly traps have been distributed about the city, and their effect is promptly visible.

At Columbus, Drs. Merriwether and Williams, who are conducting the public health campaign, examined 1,600 people for hookworm and found 527 cases infected. All were treated one time, 132 received a second treatment, and five a third.

On July 16, Dr. C. L. Williams, for over thirty years a prominent physician in this city, died from dilatation of the heart, aged 70 years. At the time of his death he was vice-president of the Georgia State Medical Association.

At Macon, Bibb County, the medical inspectors of the public schools have been most efficient in their work. Superintendent C. H. Bruce, in his annual report, says, "Their work has almost revolutionized school work in Macon, resulting in a happier student body, more regular attendance and better conditions generally." Of 5,607 school children examined 4,319 were found with defects. Reports filed show that 2,508 children were treated for the defects pointed out by the inspectors. Dental defects were the most numerous.

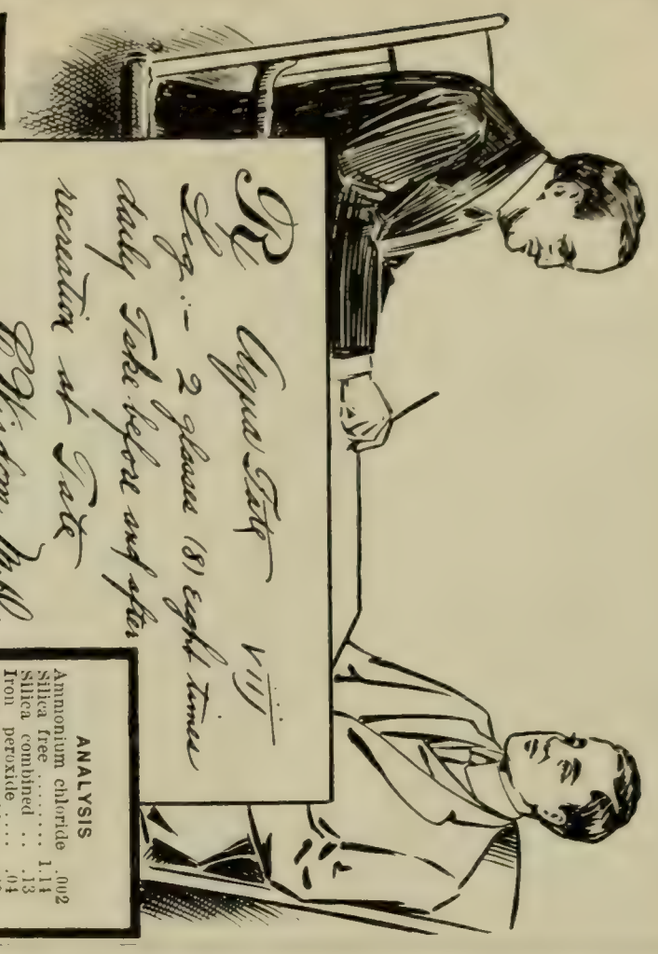
In Mitchell County the hookworm experts examined over 700 people, of whom 500 were found to be infected and received treatment.

The State Board of Health reports that during 1913 they treated 3,348 cases for the prevention of hydrophobia, with 11 deaths. By giving the treatment free of cost each sufferer was saved the amount formerly charged by private institutions, which was $140 for each treatment. Counting similar savings in diphtheria, smallpox, tetanus antitoxin, meningitis antitoxin and typhoid vaccine they estimate that they have saved the people of Georgia many hundred thousands of dollars.

At Atlanta early in August whooping cough threatened to be a serious menace to the children. Prompt and efficient measures were adopted and the disease was soon controlled.

Dr. M. M. McCord, formerly of Whigham, has moved to Rome.

(Continued on page XXVIII.)



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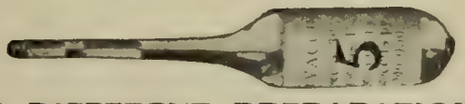

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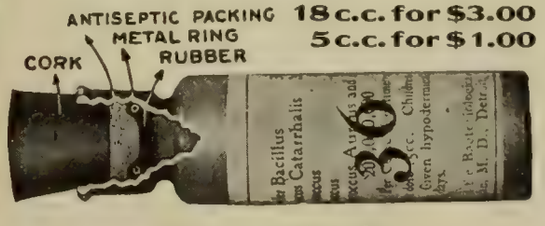

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(Continued from page XXVI.)

KENTUCKY.

At Henderson early in July twenty cases of typhoid fever were reported. City Health officer Dr. Griffin called a meeting of the Board of Health on the night of Monday, July 6th, to arrange plans for fighting the fever. It was their opinion that the water of the Ohio river was one source of infection, as it carried the sewage of Evansville, which place was then suffering from a typhoid epidemic. Also a plague of flies feasted on the filth along the river and scattered infection broadcast throughout the city.

At Louisville Dr. Henry Enos Tuley, dean of the university medical department, announced the resignation of Dr. L. K. Baldauf as professor of pathology and bacteriology of the University of Louisville, and the appointment of Dr. F. S. Graves as his successor. Dr. James Bruce was appointed resident physician at the city hospital. Dr. Baldauf resigned in order to study for two years at Vienna.

Dr. A. C. Held, of Louisville, has moved to Hopkinsville with his family, where he will practice medicine.

At Pineville the county and city health officers of the state met the State Board of Health late in August for a conference concerning the alarming increase of pellagra. The laws necessary for the prevention of infant blindness were also discussed.

At Tucker Station, near Louisville, quite an epidemic of typhoid fever prevailed during August, owing to the scarcity of water suitable for drinking. The epidemic was stamped out by proper measures, including vaccination.

At Paducah Dr. Horace T. Rivers announced that he would retire from the general practice of medicine September 1st, and limit his work to diseases of women and to general surgery.

The State Board of Health has issued an address to peace officers, health officers and the people of Kentucky, warning them against an alarming prevalence of hydrophobia in different sections of the state. Sheriffs and chiefs of police are directed to destroy, as painlessly as possible, all unmuzzled dogs running at large. Disregard of this order is to be severely punished.

Dr. John McMullin, of the U. S. P. H. Service, who has been working with trachoma in Eastern Kentucky, says that more than twelve per cent of all the inhabitants are infected with this disease. In some districts the infection ran as high as sixty per cent of the entire population.

Dr. W. L. Dudley, Professor of Chemistry at Vanderbilt, died suddenly on September 8. His health had been failing for some time. Death occurred on board a train near Chicago.

LOUISIANA.

At Amite, July 15th, Dr. William Dixon Wilson died at his residence, aged 82. He was a Confederate surgeon and served with distinction through the war.

At Shreveport a committee of prominent citizens, composed of every business element, have requested the city authorities to appropriate $5,000 for cleaning up the city and destroying the rats.

The quarantine against New Orleans because of bubonic plague which was declared by Costa Rica has been raised because of the control over the disease demonstrated by the health authorities.

The New Orleans Custom House officials claim that there are no rats in that building. Twenty-four rat traps stood there for two weeks temptingly baited without a nibble.

The complete sanitation of New Orleans on account of the presence of plague has resulted in greatly improving the public health. A decrease in mortality of thirty per cent compared with the same period in 1913 is now enjoyed. At this date only twenty-two cases of plague have developed in the whole city since its detection more than two months ago. Of these seven were fatal. It is now believed that the infection came from Liverpool. In a recent talk Dr. Rucker, the plague expert, declared that "the plague is on the run," meaning that the measures for its control were proving efficient.

Dr. Oscar Dowling, State Health Officer, requires all boats going up the river from New Orleans to be fumigated. He has written health officers at all river landings to demand certificates of fumigation before allowing any discharge of cargo or passengers.

Physicians throughout the state who neglect to file certificates of births and deaths will be prosecuted under the new law that has just been put into effect. The penalties are severe.

Two negro asylums in New Orleans have been reported to the Board of Prisons and Asylums as being in an unclean and unsanitary condition. One in particular was said to be destitute of water, and the children drank from a stagnant pool in the yard.

Hookworm is said to be rampant in the parishes of Washington, St. Tammany, Livingston and St. Helena; also in Tangipahoa. Of the thousands of people examined over fifty per cent were found infected.

(Continued on page XXX.)

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The time of Administering Antitoxin is Vital.—In the Philadelphia Hospital for Contagious Diseases, from 1904 to 1910, 256 diphtheria patients were treated on the **first day of the disease and all recovered.**

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In those treated on and after the **third day** the mortality was much higher.

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Larger Doses are Necessary.—The object in administering Diphtheria Antitoxin is to neutralize, in the shortest possible time, the poison (toxin) circulating in the blood stream and tissue fluids. Dr. W. H. Park advises 10,000 units in severe cases for little children, and 20,000 units in severe cases for adults. This is practiced in many leading hospitals.

Intravenous Injection.—No case should be considered hopeless. In malignant cases and late stages of diphtheria recovery may be brought about by the intravenous use of Antitoxin in large doses. The Antitoxin is thus carried directly into the circulation and its activity exerted at once, whereas, if given subcutaneously, only one-tenth of the amount reaches the blood stream at the end of 24 hours.

The importance of large doses is appreciated when we consider the impossibility of ascertaining the amount of toxin circulating in the patient's blood. The only safe rule is to give **sufficient antitoxin.** The giving of larger doses than are necessary does no harm; but an insufficient first dose, and in some cases the lack of intravenous injection, may be serious mistakes.

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*Osler states: In 183,526 cases of diphtheria treated in 150 cities previous to the use of "antitoxin," the mortality was 38.4. Since the introduction of the antitoxin treatment, records of 132,548 cases show a mortality of 14.6; and leaving out those cases which did not receive serum injection, the mortality is reduced to 9.8. It is estimated that without antitoxin there would be, in the United States, over 64,000 deaths yearly from diphtheria, while the mortality has been reduced by the use of antitoxin to less than 15,000 in the United States alone. This means a saving of over 49,000 lives a year.

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(Continued from page XXVIII.)

Dr. Gustave F. Walker, who has practiced in New Orleans nearly fifty years, died at his home on Magazine Street August 16th, aged 73 years.

MARYLAND.

The Rockefeller General Education Board has authorized the Johns Hopkins Medical School to use $50,000 of the income of the $1,500,000 gift made last October for improving laboratory facilities at the medical school.

Dr. J. C. Bloodgood, of the Johns Hopkins, visited London in July to address the medical congress which assembled there July the 27th.

At Cambridge, on July 8th, four physicians of the U. S. P. H. Service and six members of the State Department of Health met to arrange for a sanitary survey of Dorchester County. They decided to divide the county into four districts, with two inspectors to each, and make a house to house examination.

Under the laws passed by the last legislature the State of Maryland, outside of Baltimore City, was divided into ten sanitary districts by the State Board of Health. Each district is under the supervision of a deputy health warden, who reports directly to the State Board.

At Cumberland, Alleghany County, there has been a controversy between the city and the county as to which was liable for the expenses of caring for smallpox patients.

Dr. William S. Halstead, surgeon-in-chief to the Johns Hopkins Hospital, returned from Europe on the Kroonland early in August.

Dr. H. Flournoy, a resident psychiatrist of Johns Hopkins Hospital, is a member of the medical reserve of the Swiss army, and has returned to his country to serve in case of necessity.

Dr. William H. Welsh has cabled to his friends that he is safe at Berne, Switzerland. He did not state when he would return.

Dr. Roades Fayweather, assistant in orthopaedic surgery in Johns Hopkins Hospital, has been made a director of a unit in the American Red Cross Society, and has sailed for Europe, taking with him several young physicians from the hospital.

Dr. B. Lee Sanders, of Anderson, has moved to Rochester, Minn., where he will be on the staff of the Mayos.

MISSISSIPPI.

At their Mid-June session the Mississippi State Board of Health examined fifty-five applicants for licenses to practice medicine, of whom thirty-five succeeded. Most of the applicants were natives of Mississippi.

A committee of the Hines-Rankin Medical Society appeared before the supervisors at Jackson urging an increased appropriation for health work. The salaries have been lower than those of any other counties.

Large numbers of dead rats shipped from Gulfport in sealed cans are daily sent to the state health office for examination. No infection has as yet been discovered.

Dr. W. S. Leathers, director of public health, and Dr. E. H. Galloway, the secretary, state that one out of every forty-one persons in Mississippi had typhoid fever during the year 1913. They are issuing special health bulletins with reference to sanitary conditions around the homes and the schools.

At Vicksburg Mr. John Hilleke, of the U. S. engineer's office, has induced the mayor to write to a chemical bacteriological institute in Germany for prices on a rat poison that affects only rats. It is a bacteriological culture that poisons the rats, and is said to be remarkably effectual.

Dr. W. H. Rowan, chief sanitary inspector for Mississippi, has visited the coast towns from Mobile to the Louisiana line to assist sanitary officers in their work.

There has been an incorrect report that there was a case of plague at Gulfport. Dr. E. H. Galloway, secretary of the State Board of Health, and Dr. E. H. Rowan, State Sanitary Inspector, after visiting the town, declared that no plague exists therein, nor indeed in the State of Mississippi.

At Jackson scarlet fever has existed for a number of months. The state health authorities are urging rigid quarantine for its suppression.

At a recent meeting of the city commissioners of Vicksburg it was decided that there was no necessity for a city physician, and consequently none was appointed. The city is paying five cents each for rats brought to the city hall.

Brookhaven has joined in the crusade against rats, and purchased 168 traps for the purpose. They are distributed throughout the city.

The physicians of Meridian have requested the pellagra commission now operating from Spartanburg, S. C., to come to their city or to send representatives to investigate the cause of pellagra. The last report of the county health officer gave twenty-five as the number of cases in the county.

NORTH CAROLINA.

The Medical Society of the State of North Carolina has placed itself formally upon record against the use of alcohol in any form as a beverage; has resolved that any physician who prescribes

(Continued on page XXXII.)

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(Continued from page XXX.)

whiskey unnecessarily for any person or patient violates the principles of the profession and deserves censure; and that alcohol as a drug can be eliminated from the pharmacopoeia without in any degree impairing the efficiency of the doctor's armamentarium.

On June 18th the Medical Society of North Carolina met at Raleigh in regular annual session. The following officers were elected for the ensuing year: Dr. L. B. M'Bayer, President; Dr. J. J. Phillips, Vice-President, and Dr. Mary B. Lapham, Secretary. Greensboro was selected for the meeting next year.

At Raleigh it is reported that wharf rats are doing great damage in many ways. They are supposed to have come from the coast on grain trains.

The vital statistics law went into effect January 1st, and has been operating satisfactorily. The general average death rate per thousand is 14.2, while the average birth rate is 26.6. These averages are taken from the statistics of Wake County.

At Raleigh two persons, Messrs. Frank Groner and M. G. Markham, both from Winston-Salem, took the Pasteur treatment in August because of having been bitten by a rabid cat.

Dr. Ruth B. Leake, formerly of Battle Creek, but more recently of Asheville, died after a short illness. For several years past she had devoted her life to mission work.

The people of Winston-Salem are very much perturbed over the health record recently published, which shows that their death rate for 1913 was the highest in the state by a considerable percentage. Its typhoid death rate was over five times as high as the average for the United States, though in that respect Sanford was in the lead. The Sanford figures per 100,000 were 186.3; the Winston-Salem, 104.0. These are newspaper figures, however, and may be erroneous.

The State Board of Health claims that by employing an all-time county health officer in each county human lives of a cash value of more than two million dollars would be saved to the state every year.

Dr. Carl V. Reynolds, health officer of Asheville, has added a new feature to the monthly bulletin by publishing the standing of the city restaurants as scored by U. S. standards. He intends to make this a monthly feature of the bulletin.

The State Board of Health has received letters from the presidents of twenty colleges, in which without exception they assured the board that they would be glad to take advantage of the offer of free typhoid vaccine for the students. President E. K. Graham, of the University, writes that last year about half the students took the treatment, and that several hundred summer school teachers were also vaccinated.

OKLAHOMA.

At Oklahoma City Dr. A. D. Johannes has returned from Chicago, where he spent a month visiting the clinics. Dr. and Mrs. A. D. Young, and Dr. and Mrs. R. M. Howells, of the same city, who have been spending some time in London, England, have reached home again.

Professor Edwin De Barr, of Norman, head of the department of chemistry and vice-president of the University of Oklahoma, who has been studying during the past year in Germany, has returned to his home.

At Shawnee Dr. G. S. Baxter, who has been ill for some time, is reported convalescent.

Dr. J. H. Barr, of Reed, died recently at Portales, N. M. He had had a wounded limb amputated, and after the operation sought renewal of health at Portales.

At Mounds Dr. J. W. Bronough died August 6th.

At Peggs Dr. L. F. Coffman died August 4th, after a long illness of typhoid fever.

At Enid Dr. G. A. Boyle, who is constructing a hospital at that place, has returned from Cincinnati, Chicago and other places, where he has been seeking new ideas for his institution.

Dr. E. N. McKee, of Enid, made a through trip to Chicago in his automobile in August.

Dr. A. S. Graydon, of Idabel, who has been quite ill, is reported as convalescent.

SOUTH CAROLINA.

At Charleston, where a few cases of smallpox have appeared, City Health Officer Dr. J. Mercier Green states that without exception the outbreaks of the disease in the city have been wholly among the unvaccinated, and urges general vaccination.

At Charleston, July 5th, a campaign against rats was begun, and a reward of eight dollars was offered to the first that catches one hundred. A group of five children brough in eleven on the first day. Each rat will be sent to the laboratories to be examined for plague infection.

At Columbia City Health Officer Dr. B. H. Kaupp reports that there were but nineteen cases of typhoid fever in June, three of tuberculosis, three of pellagra, and one of scarlet fever.

At Charleston it has been decided by Dr. G. McF. Mood, city bacteriologist, that the cases of typhoid fever occurring in June resulted from

(Continued on page XXXIV.)

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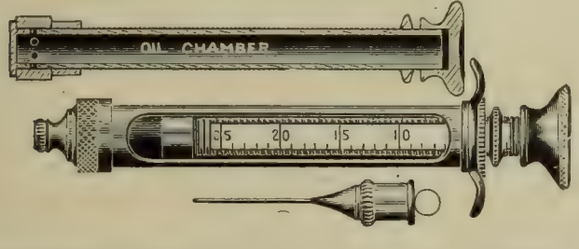

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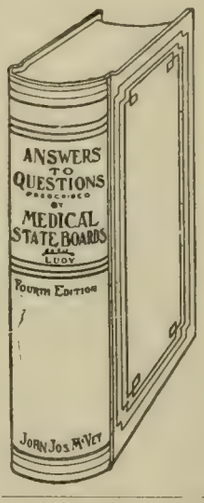

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Best method of collecting. The "advance fee" agency exposed. FREE booklet to any physician or dentist writing for it on his own stationery. Address NATIONAL MERCANTILE AGENCY, Inc., Munsey Building, Washington, D. C.

(Continued from page XXXII.)

the drinking of milk from certain dairies. The city health officer particularly advised that all those who drank milk from either the Hampton Park of the Kuhland dairies be innoculated with typhoid antitoxin immediately. The dairies were put under close inspection by the city bacteriologist.

At Columbia Dr. S. B. Fishburne has been appointed a member of the city board of health for a period of five years. He succeeds Dr. T. J. Goodwin.

Dr. R. Lee Sanders, of Anderson, is now on the staff of Mayo, Rochester, Minn.

TENNESSEE.

Dr. W. E. Hibbett, city health officer of Nashville, has issued an urgent appeal to the citizens to inaugurate an energetic war on rats.

Dr. R. Q. Lillard, secretary and executive officer of the State Board of Health, in a recent interview stated that pellagra is alarmingly on the increase in Tennessee and the entire Southern States, and thus far no progress in discovering the cause has been made.

At Chattanooga the tuberculosis hospital is in great straits for lack of financial support. The ladies conducting the institution are making pathetic appeals for assistance. On July 15th there were thirty-two patients in the hospital.

The Memphis Commercial-Appeal announces on the authority of Dr. E. C. Ellett, acting dean of the college, that the University of Tennessee Medical College has been given an official rating of Class A by the Council on Medical Education of the American Medical Association.

Dr. Olin West, State Director of Rural Sanitation, reports that hookworm disease is very prevalent in East Tennessee. In some counties more than fifty per cent of those examined were found to be infected.

Chattanooga had several cases of typhoid fever during August, the source of which could not be ascertained. All physicians within fifty miles of the city were invited to attend a special banquet of the Chattanooga and Hamilton County Medical Society on the night of September 25th.

Dr. W. D. Haggard, of Nashville, returned from Europe on the Mauritania. He had an uneventful but anxious voyage.

For the first time in its history since it established a board of health the registration shows an excess in the number of births over that of the deaths.

Doctors Duncan Eve and Duncan Eve, Jr., have entered into a co-partnership, and will occupy their same offices in the Eve Building. Besides continuing as surgeons for the several corporations represented by the old firm, they will do private work in exclusively geenral and abdominal surgery. Having sold the infirmary, they will do temporarily their operative work at the Douglas Infirmary, or until the Galloway Hospital is completed.

TEXAS.

At Houston, August 14th, Dr. A. N. Perkins died, aged 89. For eighteen years he was State Quarantine Officer at Sabine Pass. He served with distinction in the Confederate army during the entire war.

At Temple great activity has characterized the clean-up movement in which the State Board of Health and the U. S. P. H. Service took part. The citizens have invited the Surgeon-General of the U. S. P. H. Service, Dr. Blue, to visit them and inspect the city.

At Los Angeles Dr. L. C. G. Buchannan was shot in the Angelo restaurant, August 14th. It is charged that Mr. J. M. Simmons did the shooting. Hemorrahge from the lungs resulted, but it is hoped that the wound is not fatal.

In McClennan County, Charbon prevails to such an extent that the infected area has been quarantined and no stock can be offered for sale therefrom.

At Moscow Dr. H. A. Bergman died August 9th. He leaves a widow and two little daughters.

At Burton Dr. C. H. Laas, age 42, died suddenly from congestion of the brain. He leaves a widow, a son and a daughter.

At Cushing Dr. T. J. Carriker died at his home of acute Brights disease August 4.

At Seguin Dr. T. W. Moore was stricken with apoplexy August 1st, and died at his home the following morning, aged 68 years. He leaves a wife and two daughters.

Dr. Fred. L. Story has been appointed to a chair in the medical department of the University of Texas, at Galveston. He will teach physiology and pharmaco-dynamics.

At Sweetwater, August 18th, Dr. J. B. Davis was severely injured by a wounded horse to which he was administering. He was unconscious for some time.

A total of 24,654 cases of typhoid fever occurred in Texas during the year ending June 30th, according to a report by the State Health Department. The department offers typhoid vaccine free of charge to anyone who requests it through any physician in the state.

At Cameron the hookworm campaign conducted by the State Health Department closed August

(Continued on page XXXVI.)

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Urinalysis, complete	$1.50
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Physician and Surgeon headquarters. Write for illustrated Booklet with small map

CLIFFORD M. LEWIS, Manager

(Continued from page XXXIV.)

8th. About 850 examinations were made, and ten per cent of that number were infected.

Dr. Henry A. Barr has returned to Beaumont from England, where he attended the Clinical Congress of Surgeons. He returned on the White Star liner Cedric, and the voyage was exciting. She came via Halifax, whence she was conveyed to New York by a British man of war.

VIRGINIA.

At Norfolk there will be no further state inspection of vessels coming to that port after they have passed the government quarantine at Hampton Roads.

The city license tax on physicians for the year will remain in force in Norfolk by order of the Common Council.

The city is shipping its captured rodents on ice to the hygienic laboratory in Washington for examination. Hundreds of traps of all kinds and poisoned foodstuffs have been placed to the best advantage.

A pledge to immediately begin an active warfare on rats has been circulated among railroad offices and wholesale and retail business houses along the river front and was signed by forty-three officials.

The Medical College of Virginia, at Richmond, has been still further enlarged by the merger of the North Carolina Medical College, at Charlotte, effective with the opening of the next session. The Charlotte institution had about one hundred students last season.

At Staunton Dr. W. S. Whitmore was a candidate for re-election to the office of city health officer, but a letter was read before the council from Dr. W. A. Plecker, State Registrar of Vital Statistics, stating that not enough babies are being reported from Staunton for the population, and the council, failing to give a satisfactory explanation, postponed the election.

The State Board of Health gives the total number of cases of typhoid fever in the state during July as 416. It states that this is the smallest number of typhoid infection for any summer month in the history of health work in Virginia.

Seventy-six applicants for license to practice medicine successfully passed the examinations before the State Board of Medical Examiners in June.

At a meeting of the Norfolk Medical Association Dr. Powhatan S. Schenck, the present Health Commissioner, was unanimously nominated to the Board of Control for reappointment.

At Lynchburg, under a commission from the General State Hospital Board, Dr. H. W. Dew, of that city, and Dr. V. S. Stevenson, of Toano, have gone to New York for a tour of inspection of hospitals and asylums and to study their modern management.

WEST VIRGINIA.

Dr. Mary Virginia McCune, of Martinsburg, and Dr. L. Kismet Rossa, of Melborne, Australia, were married September 7 at Harper's Ferry.

Did you know that there are over forty thousand doctors in the states comprising the Southern Medical Association and that over twenty thousand of them are eligible for membership in the Association?

How many of them have you spoken to about YOUR organization?

"OUR STATES"

How many of them have you tried to get interested with you in YOUR organization?

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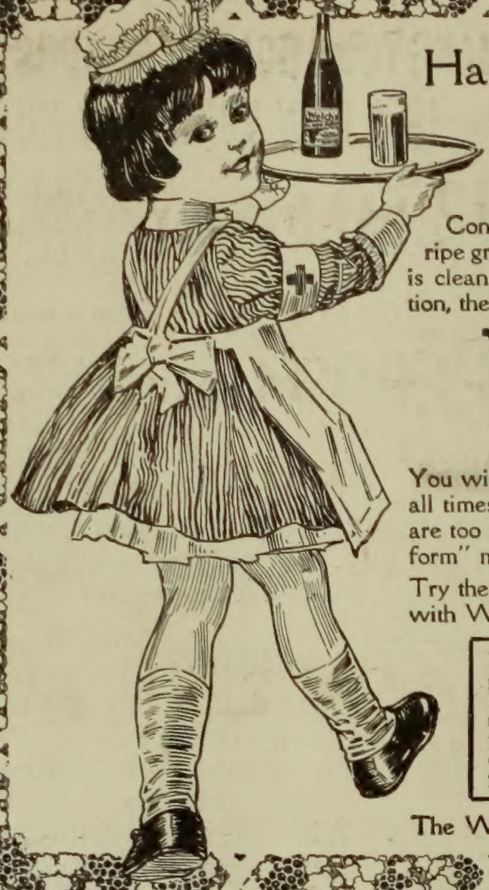

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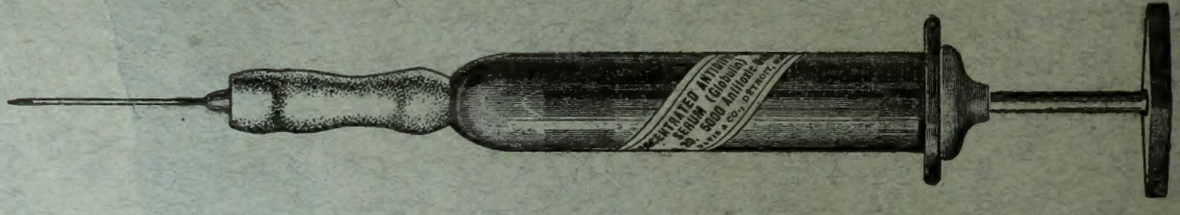

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